Di

istraction

MOST of us will agree that the cockpit of an aircraft is no place for unnecessary distraction of a pilot's attention. There are simply too many dials and indicators to monitor and controls to manipulate (not to mention the lookout which must be maintained). Yet we hear frequently of accidents or near-accidents which can be attributed in some measure to distraction or inattention.

Two mishaps have occurred during the past year in training activities which are suspected of having been caused by pilot distraction. In one case a student pilot had completed the scheduled formation work on a two-plane night flight. The instructor, after leading the flight into the break, made a final landing but the student remained in the touch-and-go pattern for landing practice. Following the first touch-and-go landing, the student's aircraft flew into the ground 1.5 miles upwind of the runway. It is suspected that the student's attention was distracted by other aircraft entering the break; he had called for clearance to turn downwind but had not yet been cleared due to the other aircraft which were breaking overhead.

Another landing pattern accident of a similar nature occurred to a Fleet replacement pilot flying an A-7A aircraft. He inadvertently flew his aircraft into the ground, probably due to the distracting influence of other aircraft joining the pattern. There is also evidence that fatigue was a substantial contributing factor in this accident.

The pilot was on a scheduled night FMLP (field mirror landing practice) flight. Initial takeoff was normal and the pilot had made three practice approaches and two FMLP landings. After liftoff from the second landing the aircraft climbed to about 300 ft AGL and then nosed over into a shallow glide and impacted the ground. The aircraft exploded and was destroyed by the ensuing fire. The pilot was fatally injured.

The initial premise reached in the investigation was that the cause of the accident was either a system malfunction or material failure. After a complete field investigation of all the hardware, it was ascertained that there was no evidence to support this conclusion; therefore an investigation of possible human factors was initiated.

The investigation brought out that on the day of the accident the pilot had put in a considerable number of hours at work. He arose at 0830 and during the course of the day had planned and successfully completed a 2.1 hour low-level radar navigation flight. This particular flight is a strenuous, fatiguing one flown under simulated

instrument conditions and requires several hours of preparation. The flight had been completed in the late afternoon but briefing for the night flight (during which the accident occurred) did not take place until 2300. Actual takeoff was not until about 0100 – more than 16 hours after the pilot's day began.

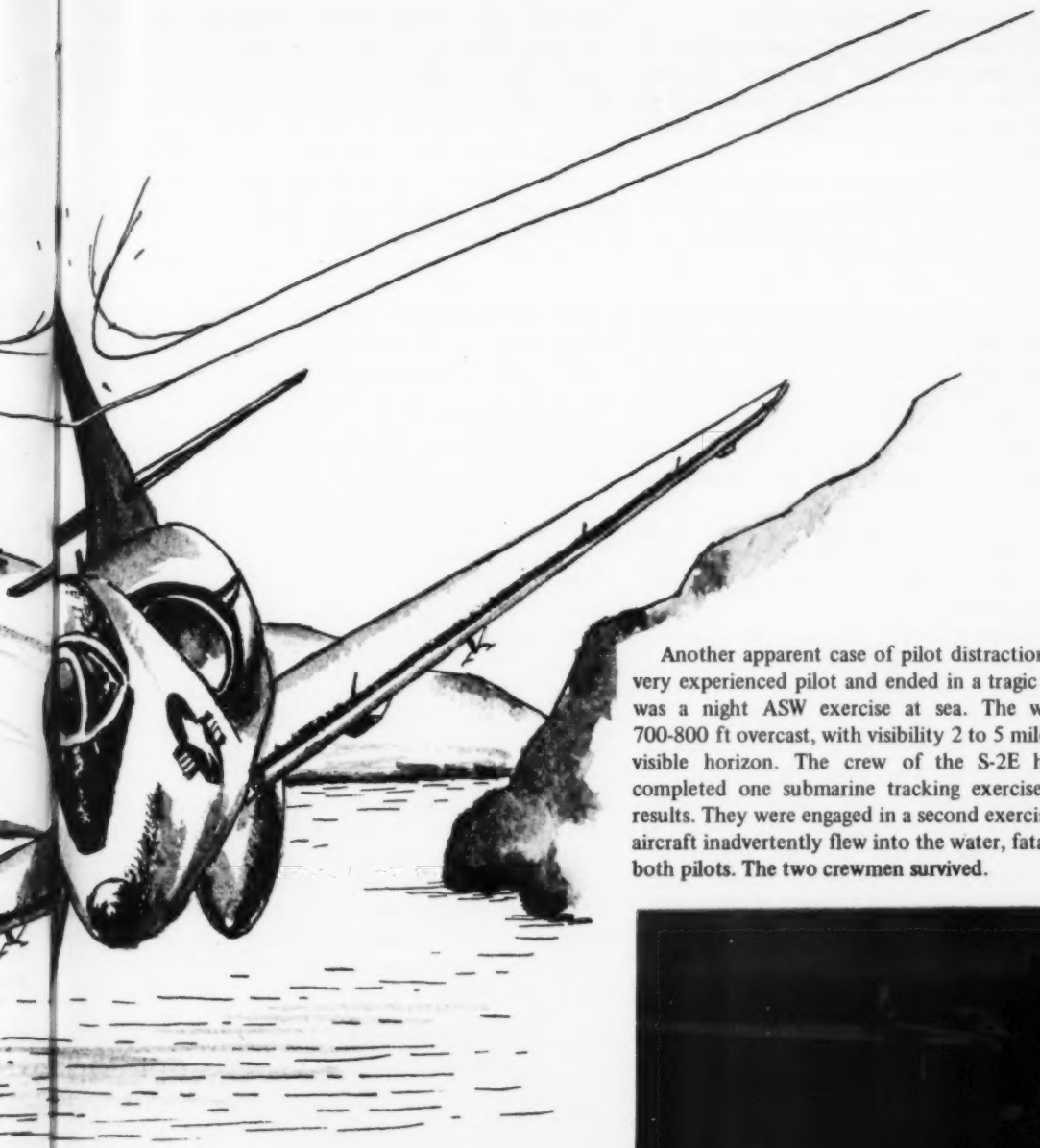
The interval between the completion of the low-level radar navigation flight and the night flight was spent in part at dinner. Although this does not account for the entire period, there is no evidence that the pilot got any rest. The investigators considered that the pilot had, in fact, completed a good day's flying upon completion of the low-level radar navigation flight and had probably done little to rest in the interval before his field mirror landing practice flight. They also took into consideration the fact that this was a night flight. All together, these factors suggested a definite factor of fatigue.

They considered the following as having been the probable sequence of events during the flight:

As the pilot completed his third pass, two more aircraft joined the pattern and he was directed to take interval on them. This would necessitate transferring his scan from his instruments to the other aircraft. As he lifted off, these aircraft were estimated to have been directly overhead and moving away from him. After reaching 300 ft he reduced power (verified by witnesses on the ground). It is theorized that he inadvertently leveled off and set a nose attitude that was probably 4 to 6 degrees nose-down. (In this attitude, the aircraft would impact the ground in about 10 seconds – the time interval established by witnesses between the power reduction and impact.) It is probable that after the power reduction had been made the pilot again fixed his eyes on these two other aircraft and flew into the ground without adding power. Due possibly to mental and physical fatigue and the lack of outside references (the runway lights were out), he may never have realized that he was in descending flight, distracted as he was by the other aircraft.

It might seem that inexperienced pilots would be the most susceptible to distractions such as we have recounted and they probably are – at least in the matter of landing pattern traffic. It certainly seems reasonable to expect that a highly experienced pilot will be able to successfully entertain and meet greater demands on his immediate attention than an inexperienced pilot; however, NavSafeCen files show that experience alone is no guarantee against the hazards of distraction.

Consider the A-4 pilot with many, many hours of flight time who, on a VFR low-level navigation flight, descended to 375 ft AGL as he flew along a river. He was flying with his oxygen mask off and draped across his lap. The mask slipped from his lap and fell to the cockpit floor. The pilot bent his head and reached to retrieve the mask; as he did so, he allowed the nose of the aircraft to drop and it began an unscheduled descent. Fortunately, the pilot had the radar altimeter set to provide a warning should his aircraft descend below 375 ft and the warning light came on almost as soon as the pilot lowered his head. He noted the warning light and looked up just in time to see two cables stretched across a valley, very close to and directly in front of him.



Reacting almost instinctively, he pushed the nose of the aircraft over, hoping to fly under the cables – but too late! The vertical stabilizer struck both cables. Miraculously, the cables parted without destroying the stabilizer. The pilot found his aircraft was still controllable and climbed to altitude where his wingman inspected the aircraft for damage. Then, after checking the aircraft for slow flight characteristics, he proceeded to make a safe landing.

Another apparent case of pilot distraction involved a very experienced pilot and ended in a tragic accident. It was a night ASW exercise at sea. The weather was 700-800 ft overcast, with visibility 2 to 5 miles – and no visible horizon. The crew of the S-2E had already completed one submarine tracking exercise with poor results. They were engaged in a second exercise when the aircraft inadvertently flew into the water, fatally injuring both pilots. The two crewmen survived.

During the investigation it was brought out that the pilot was a very experienced ASW plane commander. His squadron mates spoke of him as enthusiastic, meticulous and intensely interested in the ASW mission. It was said that he conducted his flights in a professional manner

and strived for perfection in all phases of flight.

On the other hand the copilot – through no fault of his own – had very little ASW experience. On this particular exercise, his first operational mission with a submarine, he was methodical but slow in performing assigned cockpit duties.

According to statements of the surviving crewmen, the pilot spent a substantial amount of time instructing the copilot on the use of the ASN-30 (navigational computer display set). Evidence indicates that the pilot was also engaged in setting up the ordnance panel, normally a function of the copilot. Finally, the pilot was involved with planning the *Julie* problem and briefing the copilot and crew on how it would be conducted, again a function normally assumed by the copilot. All of these nonpilot functions combined to divert the pilot's attention from his primary task of flying the aircraft, which was a demanding task in itself considering the weather conditions at the time.

The board concluded that because of this division of attention the pilot's instrument scan broke down so completely that he lost several hundred feet of altitude and flew into the water.

This case differs from the others in that the pilot's distraction was more prolonged. In fact, his distraction borders on what we usually identify as complacency, e.g., an experienced pilot who performs a very demanding task successfully so many times that his appreciation of potential hazards begins to diminish.

It is difficult to draw useful conclusions from accidents such as these other than that we ought to caution pilots to be alert and to ignore unnecessary distractions. This will hardly fill the bill, however, since many of the distractions we encounter are also warnings which must be attended to. No one can say that the two students were not alert for other aircraft. Rather, it appears that they got into trouble because they failed to maintain the proper overall perspective on their situations. The same thing may be said of the other two (more experienced) pilots; they were alert in a manner of speaking but they both allowed the basic requirement of "fly the aircraft first" to slip into the background of their attention. The A-4 pilot did so by putting his head in the cockpit at low altitude and the S-2E pilot appears to have done so by devoting an excessive amount of attention to functions normally assigned the copilot.

We might go on to say that maintaining the proper perspective as we progress from moment to moment during flight seems to be a matter of sorting out and giving priority to the many demands for attention which confront us. The answer is not to avoid distractions per se (although unnecessary distractions should certainly be avoided) because many of the distractions are also warnings, as in the advice to the students about the other traffic. Moreover, we have a wide variety of warning devices in our aircraft which provide valuable warnings in the form of distractions. Warning flags, lights – even voice warnings in some aircraft – distract us from whatever may be claiming our attention at the moment and redirect our attention – at least momentarily – to matters presumed to be of higher priority.

Our ability to cope with these distractions is no doubt dependent upon many things, e.g., fatigue, mental attitude, knowledge, training and experience – in a word, our individual limitations.

In the final analysis, it is the individual pilot who is most often in the best position to assess his personal limitations. It is he who must take the initiative and act to maintain the proper perspective on his situation throughout a flight. He must not forget that as long as he remains firmly attached to the aircraft, keeping it flying comes first regardless of the distracting influences which may arise.

A Case of Mistaken Identity

IT WAS a case of mistaken identity which under slightly different circumstances could have turned into a disaster. Here's how it happened:

A flight of two OV-10As checked in with Bordertown Approach Control and requested individual GCAs to NAS Nearby. The flight was VFR above a low cloud layer with the bases reported as 1000 to 1700 ft broken, visibility 7 miles. The flight leader reported to Approach Control that his transponder was inoperative *but that his wingman's transponder was OK.*

The flight broke up and separation was provided by Approach Control. The aircraft were each switched to a different frequency and radar vectored to the radar handoff point. The flight leader was handed off to GCA and completed his approach and landing without incident. The wingman's approach turned out to be more interesting.

He was handed off to GCA and his radar position was passed to him as 8 nm on the 120 degree radial of the Bordertown tacan. The pilot acknowledged this information but did not bother to cross-check it with his tacan readout. At the same time – but unknown to the pilot – Approach Control erroneously advised GCA that the OV-10A's transponder was inoperative.

In the meantime, the pilot of a C-117 on a local VFR flight called the tower and requested a straight-in approach from 6 miles out. The tower denied the request because of conflicting GCA traffic and instructed the C-117 to "report over the numbers." The pilot of the C-117, however, misunderstood the tower instructions and thinking that he had been cleared as requested, commenced a straight-in approach. Thus, the stage was set for the case of mistaken identity.

With the GCA controller looking for his target on the scope, it is easy to understand how the C-117 would show up a lot better than the OV-10A; however it does not excuse the failure of Approach Control and/or the GCA controller to make proper transfer identification. Nevertheless the error was made and the controller began to issue approach instructions to the OV-10A, based on his scope presentation of the C-117.

While the pilot of the OV-10A was still at 1500 ft, he received consistent advice from the final controller that he was "below the glide slope." The OV-10A pilot tried to question the controller on this unexpected advice but was unable to interrupt the controller's continuously keyed mike. Finally, the controller announced, "You are over touchdown, take over visually and complete your landing; switch to tower frequency on the rollout." Only then was the OV-10A pilot able to get a word in. At this time he informed the controller that he was at 1500 ft, executing a missed approach. During the missed approach, the pilot spotted a known landmark through a break in the clouds and recognized that he was well to the south of the final approach course. The rest of the story is routine – the pilot accomplished another approach and a safe landing – then huddled with the safety officer. They concluded that this incident was due to the following factors:

- The erroneous information concerning the OV-10A's transponder which was passed to GCA by Approach Control.
- The failure of Approach Control and/or GCA to make proper use of one of the methods available to eliminate any doubt as to the radar target's identity.
- The failure of the OV-10A pilot to cross-check his reported radar position with his tacan indications.
- The failure of the pilot of the C-117 to understand and comply with tower instructions.

In addition, when the pilot of the OV-10A recognized that all was not right he should have taken positive steps to communicate with someone. This could have been done by switching to Guard or even to tower frequency since he was unable to get through on the GCA frequency. The point is, good headwork dictates that a pilot not continue a final approach to "over touchdown" while flying at 1500 ft AGL without taking some positive action to clarify the situation. ◄

Short Snorts

There *are* people who don't make the same mistake twice.
They just make new ones.

Sea Knight Gremlins

ONE winter morning the pilots and maintenance gang of a Marine helicopter squadron had their hands full of mysteries. *Three* CH-46s, in the space of an hour or two, exhibited the same symptom – a reluctance of the No. 2 engine to keep running. The first helicopter, while cruising at 1500 ft and 100 kts, experienced failure of the No. 2 engine. The wingman noticed white smoke coming from the engine so the pilot landed in a farmer's field to inspect the engine. Nothing unusual was found and the engine was restarted. The pilot performed a power check and then returned to base. The pilot of the second CH-46, while still in the chocks, advanced the condition levers to fly only to have the No. 2 engine quit at about half travel to the fly position. The crew chief also noted white smoke coming from the engine. After a few minutes wait the No. 2 engine was restarted and all indications were normal. The third CH-46, like the first one was airborne – cruising about 1700 ft and 110 kts. The outside air temperature was -4°C so anti-ice was applied. The No. 2 engine quit. About 30 seconds later a successful relight was made and the aircraft continued on its scheduled flight.

Later that morning further investigation revealed that the three engines had suffered FOD to a slight degree. The facts which had a bearing on these unusual events were these:

- The engine failures took place on a Monday morning.
- The previous weekend had been cold, windy and wet.
- It was the first flight/turnup of the day for each plane since the preceding Friday.
- The temperature on Monday morning varied from 28°F at the beginning of air operations to 35°F three hours later. The day was clear – no visible moisture.

In his endorsement the C.O. advised that preheat had been used for 10 to 15 minutes over the inlet screens and the engines had been cranked to dissipate moisture on all aircraft. Since only one engine was affected in each instance it was surmised that it must have been on the weather side. In one case it is suspected that ice formed when the condition levers were moved to fly. Yet, in the other two cases, ice didn't enter the engines until after they had been running for about an hour. To obviate the problem in suspect weather conditions the C.O. recommended that the inlet screens be removed prior to start and, after applying preheat and cranking the engines, the area be wiped dry and the screens reinstalled. This would prevent an accumulation of ice prior to engine start. He further decreed that all squadron pilots would treat an unexplained engine failure as an emergency, until a detailed check could be made to determine the cause, and that flights experiencing such failures would be terminated as soon as practicable.

A word of caution about removing the screens – ensure that reinstallation is a quality job and that by avoiding ice one doesn't end up with FOD from a loose or forgotten screw from the screen. – Ed.

Good Fortune

INVARIABLY, emergencies occur during a night dip, during a MAD trap or shortly after a maximum load IFR takeoff. Disaster too often follows. In this incident, however, all of the odds

were stacked in favor of the pilot for a change and he didn't blow it.

The S-2D was on a local training flight at 8000 ft near the home field. The pilot was demonstrating engine-feather procedures for a new copilot who was flying in the right seat. The No. 1 engine had been feathered and the pilot was in the process of unfeathering. As the cylinder head temperature reached 100°C a loud "thump" from the port engine was heard by both pilots. Shortly afterward the CSD failure light, the left generator light and TR failure light all illuminated. The pilot called for the copilot to disconnect the CSD immediately. The pilot secured the left generator, actuated the AC bus tie switch and returned to base. After landing, inspection of the port engine disclosed that the thermal/transmission shaft switch was swinging free. The head of the element showed evidence of extreme heat. There had been no CSD warning light prior to the shaft failure. Fortunately the low power setting at the moment of failure and the quick pulling of the CSD disconnect prevented the loose, broken shaft from flailing around and causing serious damage in the accessory section.

There is no substitute, as these pros demonstrated, for knowing your emergency procedures and taking action – quickly and correctly.

Unauthorized High Side Pass

THE pilot of a UH-2B was making an approach for a landing at a naval station in our 49th state. While at 200 ft and descending he spotted an eagle 100 yds ahead and level with the helicopter. The eagle was drifting left when suddenly it executed a tight, right wingover and attacked the helicopter. It struck the aircraft despite a violent

climbing turn executed by the HAC. The pilot then continued his approach and made an uneventful landing. No vibrations or unusual control responses were experienced. The eagle sustained Alfa injuries and an investigation of the helicopter revealed damage to one rotor blade tip cap, which had to be replaced.

This is one for the birds.

Stuck Brake

THERE were 19 souls on board – 14 passengers and a crew of five – when it happened. A C-117D was on the second leg of a scheduled logistics flight in the Med area and after touchdown the aircraft pulled left. The pilot executed a waveoff as the aircraft left the runway. Another landing was attempted with the same left pull and another waveoff was made. The pilot decided he had a locked left brake and elected to return to home base where more assistance was available. The tower was advised of the problem and the runway was foamed down the center. The pilot executed a landing and feathered both engines upon touchdown. The plane rolled straight ahead until it reached the end of the foamed strip indicating about 30 kts. The port tire then blew out and the plane swerved left about 20 degrees and stopped on the runway. The passengers and crew evacuated the plane without further incident.

The left brake assembly was removed from the aircraft and two pads were found to be gripping the disc tightly enough to prevent movement by hand. The two halves of the assembly were disconnected and then reassembled on a hydraulic test stand. Same result. When the assembly was pressurized the same two pistons again stuck allowing the pads to grip the disc tightly. The brake assembly was again disassembled including removal of the pistons. A small amount of sediment was found on the inside of the cylinders and an accumulation of friction pad residue and grit was found in the gap between the piston and the cylinder on the outside of the assemblies. These accumulations were not considered abnormal. Some nicks and scratches were found on all of the pistons and cylinders. The brake assembly was then thoroughly cleaned and reassembled. When actuated on the test stand the assembly functioned properly. It had been 14 months since the last shop overhaul on this brake assembly.

The C.O. said that experience in the command has shown that about six to eight months was the normal expected service life. When no replacement brake assembly is on hand line personnel replace brake pads without changing the assembly. In the future, when no replacement brake assembly is available, each worn assembly will be rotated through shop overhaul.

This is one approach, what procedures do you other C-117D operators follow? ◄

Leonardo Da Vinci studied the flight of birds and ultimately invented the first flying machine. Little did he realize the hazard that would be presented to aviators through the

Conspiracy of the Birds

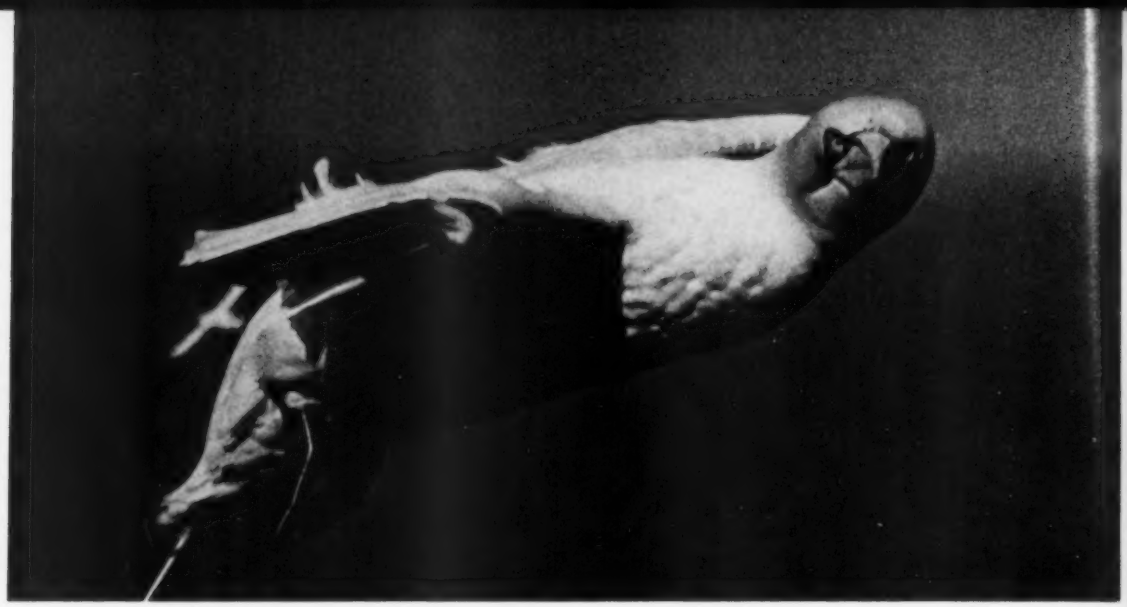
By Lt Arnold J. Hupp

(With apologies to Alfred Hitchcock)

IN AND AROUND the area of a West Coast naval air station, strange occurrences have taken place. The incidents initially appeared to be unrelated but more recently they have begun to form a pattern.

The first incident of note occurred on a rainy, fog-shrouded day last fall when a great blue heron appeared as a blip on the GCA radar scope – without a flight plan or an IFR clearance. Although without a clearance, courtesy was extended and the heron was talked down in conditions of zero ceiling and near zero visibility. After being cleared to land, the heron was instructed to take over visually and complete the landing – at which time a horrible gear up landing was observed by the crash crew. The great blue heron was rescued from the runway and turned over to the local humane society with a broken left main mount. Investigation of this incident continues.

This spring another significant incident occurred one morning prior to the first launch of VP-31's P-3 *Orions*, when two seagulls were observed to be loitering on runway 32 right, abeam the GCA shack. As the props of the first P-3 dug into the air on the takeoff roll, the pilot noted two specks on the runway but disregarded them since he was more concerned with heading control. At well over 100 kts and within 1000 ft of the gulls the pilot realized that he was in a trap when the first gull took to the air and established a hover at 40 ft above the runway. The pilot of the aircraft was thus prevented from rotating to the takeoff attitude for fear of a bird strike shortly after liftoff. At that time the pilot's only



alternative was to hold the aircraft on the deck, under-run the hovering gull and hope that the sight of a 50-ton monster bearing down on him would scare the second bird into the air. But alas, the eyes of the grounded gull were intently fixed on the No. 2 engine of the accelerating P-3 and, at the last possible instant, he left the ground in what appeared to be a panic takeoff to escape being run over. As the gull became airborne, he was sucked through the P-3's prop and into the engine intake which resulted in a catastrophic engine failure and a hair-raising abort of the takeoff. Investigation of this incident is still open on the question of whether destruction of a $125,000 engine and propeller coupled with the near-loss of a five million dollar aircraft and combat crew embarked was deliberate. Was this incident intentional? Was it part of a conspiracy? Only the birds know.

These seemingly unrelated incidents fell neatly into place one evening last month when I witnessed a replay of Alfred Hitchcock's movie, "The Birds," which was being rerun on TV. Since then I have been highly suspicious and critical in my observation of incidents involving birds.

At the present time there is a blackbird living in a tree outside the officers' club which has been observed on more than one occasion to attack (dive-bomb) the officers as they come and go. Observation and investigation of this blackbird is continuing.

The latest and most unnerving incident motivated submission of this report in order to alert all hands to be on the lookout for the birds. This incident occurred on the VP-31 flight line. A bird nest was discovered in the flap well of a P-3 aircraft. The nest itself was not unusual but it concealed an unusual hazard to safe flight. While dissecting the nest it was discovered that intertwined amongst the straw, paper and string was a length of 40 gage safety wire which not only held the nest in place but quite effectively lashed an aileron control cable to a stationary turn pulley. It is possible that this situation – had it not been discovered prior to flight – could have caused the loss of an aircraft and its crew.

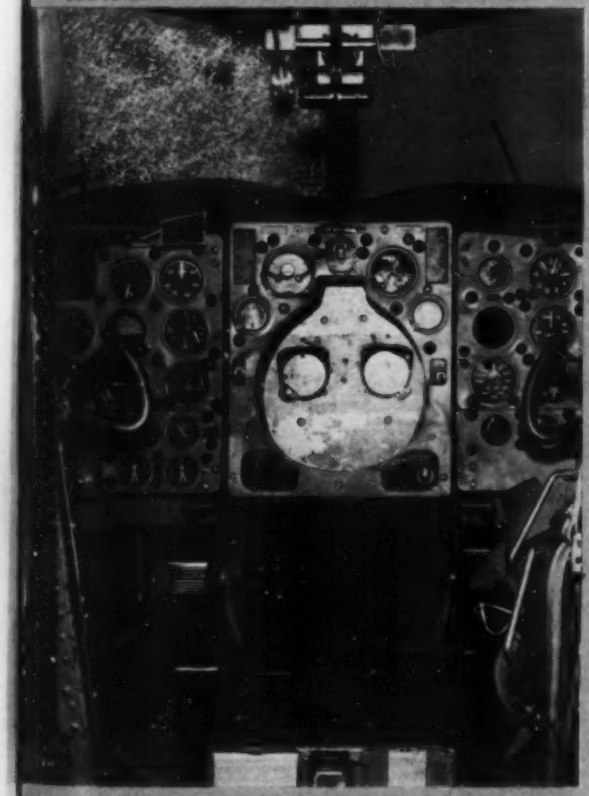
So there you have it; forewarned is forearmed. When engaged in flight ops it will pay you to beware the birds! Don't become an innocent victim of their conspiracy.

Bird ingestion in turbine engine aircraft is no joke. A recent accident at a mid-west naval air station involving the ingestion of a prairie chicken during takeoff cost the Navy a first line operational aircraft and seriously injured both crewmen. The investigation report concluded that the grassy areas on the field had become a sanctuary for the fowl. It was therefore recommended that continuous mowing procedures be instituted in the areas adjacent to the runways; however, subsequent conferences with experts on prairie chickens and fish and game officials indicate that – in the case of prairie chickens – the problem will not be resolved by intensive mowing alone. These officials noted that the prairie chickens are creatures of traditional habits and come back to the same mating grounds each year. Consequently, it is believed that only the destruction of the birds presently mating along the runways would eliminate the problem. The investigation in this case is continuing and additional information on the subject is expected in the near future.

Prairie chickens are by no means the only fowl to cause trouble. Seagulls are a particularly obvious hazard during operations at fields near the coasts.

Picture Story

This exterior view of a shattered wind screen is result of a bird strike.



Interior view of same wind screen showing strike area and broken glass on folding console.

It pays to be alert for the presence of birds of any type during takeoff and landing operations as has been forcefully demonstrated on numerous occasions. For more detailed information on birds and their habits, refer to the article entitled, "It's That Time Again" in the November 1968 issue of APPROACH – Ed.

propriety

OCCASIONALLY an aircraft accident report passes through the analysts and writers at NavSafeCen which appears to be the result of deliberate and flagrant violations of safety rules and concepts. Almost without exception this kind of accident results in fatalities. In nearly every instance this kind of accident occurs while the pilot is away from his squadron and operating on his own. Another apparent similarity in this type of accident is that usually the pilot is a junior type – junior in rank but not necessarily low in flight time. For instance, a typical case involved a young helicopter pilot (about 700 hrs), off on a detachment, who attempted two takeoffs in a chopper later determined to have been

almost 1800 lbs overloaded. On the first attempt he experienced RPM droop to below 90 percent and aborted. On the second attempt, a running takeoff, he was unable to keep the helicopter airborne and while in a downwind turn crashed into an embankment – there was only one survivor out of several people aboard.

Literally billions of dollars have been spent for production and for improvements to make our "birds" the finest aircraft in the world and to include the best equipment possible to make a pilot's job a little bit easier, a little bit better and a little bit safer. Countless thousands of hours of thought and effort have gone into preparation of handbooks and manuals to enable pilots to read, to see and to know all there is to know about their weapons systems. The sweat and tears and hundreds of hours spent to train pilots as naval aviators are not to be taken lightly. A certain amount of spoon feeding continues for the pilot after he successfully completes replacement training and joins his operational command. The pilot is certified physically fit by the friendly flight surgeon. His progress through the ground and flight syllabi is carefully watched by the training, flight and operations officers. He must pass examinations with high grades and the numerous flight checks must also be passed with flying colors. Ultimately the C.O. designates him. This designation means that the pilot has proved to his peers that he knows enough about his weapons system, knows enough about course rules and operating procedures and many other things to be able to deploy and to use his weapons system in most tactical situations. Throughout all of the time spent in training to become qualified a pilot is subjected to close supervision. He is made to conform to the unit's SOP and learns that to deviate from NATOPS is heresy. He wouldn't think of it. The reasons for the close supervision and regimentation are obvious.

Mental Attitude

In many young naval aviators there is an it-can't-happen-to-me attitude. In most aviators who live long enough, and most do, this attitude disappears with time and experience. However, sometimes this attitude explains some bonehead acts which occur. For example, a young pilot on a cross-country flight in a helicopter decided to do a little buzz job (to break the monotony of the flight?) and ended up crashing inverted when he hit some unseen wires which flipped him over. Reams of written words and many lectures are given to all pilots about not flathatting and not buzzing the old home place but despite this, now and then someone does it and all too often pays the price. Since many of the flathatters do not survive we are hard pressed to pinpoint the reason for such an act. Let's call it immature showoffsmanship. The place for showoffsmanship is hitting the bullseye with the bomb, making a successful helicopter rescue, making an on-line, on-speed carrier landing, hitting all of the check points on a Sandblower hop or laying a perfect sonobuoy pattern. One has to show *real* talent to do these things correctly.

Protective Equipment

Present day flight clothing – hard hats, nomex flight suits, gloves and flight boots – have all been carefully designed and made of materials to be as comfortable and as functional as possible. Their use, of course, is to protect the wearer to the nth degree. When an aviator flies without all of these items he literally is betting his life he won't be involved in an accident and won't need the protection these items afford. That's a bad bet. Survival equipment, like personal items, also has been designed to afford the greatest possible safety features. Although current survival equipment can and will be improved, what we have is all that is available and flying without a "full bag" is senseless. Why lower the odds against chances of survival just because you don't think you will need the gear. Squadron rules and regulations, ship and fleet instructions, NATOPS and good common sense dictate wearing all personal safety items and using all survival equipment when flying. Wear and use these items as if your life depended on them. It does. In the first accident mentioned the AAB disclosed that none of the crewmembers were wearing nomex flight suits, none of the crewmembers were wearing gloves, one of the pilots was flying in low-cut shoes, one of the pilots had his sleeves rolled up and neither pilot had his visor down. *Get rid of that it-can't-happen-to-me attitude!* The gear is available. Its use is mandatory. Wear it!

Trust and Confidence

A few years ago many articles appeared in various Armed Forces publications concerning the whittling away of one's rights and privileges. In these articles two words kept appearing and reappearing – trust and confidence. In aviation, more than in any other branch of the service, trust and confidence play an important part in our daily lives. When we leave our usual surroundings we do so with the trust and confidence of our C.O. and shipmates. We have demonstrated repeatedly that we can hack it – else we wouldn't be going alone. It's the mature individual who takes this trust and confidence of his C.O. and conducts himself accordingly. Be like the real pro who, without supervision, conducts a little bit better briefing, makes a little more thorough preflight, pays a little more attention to his flight plan. It's that little extra effort that counts. Knowing what is proper is not enough – *executing it is.*

The arrestment looks good but . . . ?

Double Check Those Tires After FCLP

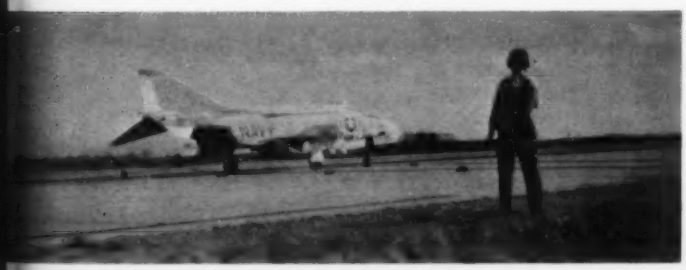
THE pilots in a flight of F-4Bs were briefed for a combination practice assignment consisting of a bombing mission followed by two periods of FCLP. Things went along routinely through the ordnance exercise and the first FCLP period. One of the *Phantoms* made six normal FCLPs then went back to a nearby home base and landed for hot refueling. The crew remained in the aircraft while more JP was pumped in and a ground crew made a cursory inspection of tires, brakes, gear and general airframe

condition.

All seemed in order for the second period of daylight FCLP so after replenishment, takeoff was commenced. Just as the nose was raised at rotation speed, the crew detected an abnormal vibration but it was passed off as a *hard* AB light. A few minutes later, the first (of the second period) FCLP landing was made at the nearby outlying field. After touchdown, the vibration was again detected and immediately the pilot suspected a blown tire. Fortunately, the plane was quickly back in the air from the planned touch-and-go before trouble could intervene.

The LSO confirmed the pilot's suspicions that he had a blown left tire and recommended a gear-down bingo to nearby home base. A routine arrestment was arranged and the duty LSO instructed the pilot to touch down 100 ft short of the pendant while insuring he was on the centerline.

The *Phantom II* caught the first pendant slightly to the left of centerline while drifting to the left. A crosswind from the right quarter did not help matters. Some 1090 ft beyond the pendant location, the aircraft went off the left side of the runway where it suffered substantial damage in the turf. No fire occurred and the crew got out unharmed.



The primary cause of the accident was the pilot's failure to fully utilize accepted NATOPS procedures for a short field arrestment in that he did not: land just short of the wire; deploy the drag chute; land on centerline; retard the throttles to IDLE at touchdown; or shut down one engine on runout. There was a better runway (more into the wind with a short field capability) which he could have requested.

In spite of the pilot getting most of the blame, there is a mitigating point which is considered worthy of mentioning. The pilot had made six FCLP touch-and-goes which are not hard on the brakes but can be hard on tires. Following this, the seventh landing was to a full stop and taxi to the hot refueling pits. The tires and brakes were visually inspected by a ground crewman but such an effort was seriously handicapped by the noise and heat of the idling engines. Moreover, ground crewmen are continually cautioned to keep clear of jet intakes and exhausts. Such conditions are bound to impede inspection efficiency and exactness.

The port tire blew on the next takeoff which must cast a dark shadow of doubt concerning just how well the tires were inspected. This would seem to point out that under such hard usage operations and handicapped inspection situations, a more reliable tire inspection is required. ◄

THOUGHTS ON F-4 SEQUENTIAL EJECTIONS

By CDR W. V. Lassen

Since this article was written an F-4 was lost off the catapult and the crew was saved by an RIO initiated sequential ejection. – Ed.

LATELY there has been much to do about the H-7 sequence ejection system in the F-4 aircraft and how this time-consuming process may be saving the rear seat man at the expense of the front seat man, particularly during catapult launches. I want to go on record right now by stating that I don't think this is the case. The facts of the matter are that the sequence system presently incorporated in H-7 equipped *Phantoms* will safely eject two crewmembers in a nominal 1.4 seconds. This is at least two seconds faster than individually initiated ejections could do safely. The key here is the word *safely*.

As you recall, the H-5 ejection seat incorporated in the F-4 relied on aircrew teamwork which allowed the rear seat man, under normal ejection conditions, to clear the aircraft first, followed by the pilot. The trouble was that under abnormal conditions, meaning limited time available, each man initiated ejection as soon as possible and the end result, in two cases on record, was one known collision between an RIO and the front canopy and one suspected RIO collision with the front seat. These events established the requirement for the present sequential system (H-7).

As mentioned before, the present F-4 sequential system requires 1.4 seconds to eject two crewmembers from the aircraft after initiation. The key word here is *initiation*. We have recently lost two front seat men off the catapult. Naturally, there are many "and's," "if's" and "but's" about these accidents. A few things are known though: both RIOs survived by self-initiated ejection while both pilots were still in the aircraft when they contacted the water. In one of the cases the pilot's canopy did leave the aircraft prior to water contact, in the other, it didn't. In the case where the canopy was seen to leave the plane, it was speculated that there was a malfunction in the ejection sequence. On the other hand, if you assume the pilot jettisoned his canopy in preparation for ditching then another picture is painted. In the case where the canopy was still on the aircraft, again you can assume either a malfunction occurred or the pilot initiated ejection too late or not at all.

There is no doubt about it, aircrews in any type aircraft have a serious problem in the event of a faulty catapult launch off a carrier. In the two cases mentioned there were six seconds, plus or minus one-half second, available from the time the aircraft was released from the holdback to the time the plane was in the water. From this time, if you deduct two seconds for the period when everything was going normally, you are now in the four-second realm. When you deduct the 1.4 seconds for ejection sequencing, you are then down to between two and three seconds available for determining the problem, making the decision to eject and initiating ejection. Statistics show that this time has often been too short for pilots to cope with when encumbered with flying an aircraft during a critical phase such as a catapult launch.

This problem was looked at in depth recently at a plant conference attended by representatives of operational and headquarter activities. It was determined that through the expenditure of significant funds and a delay of perhaps two years to design, test and retrofit, sequence time could be reduced to a nominal nine-tenths of a second. However, one must wonder if the gain of 0.5 seconds is really the answer to the problem. Again, if we look at the two cases previously cited, even with a sequence time reduced by 0.5 seconds, we are once more in the area of "and's," "if's" and "but's," concerning successful pilot escape.

Fortunately, there is a reasonable solution to the problem which is available now. This solution lies in the use of the command select valve located in the rear seat. When this valve is in the open position, it allows either seat occupant to initiate sequential ejection of both crewmembers. Under the conditions involved in a catapult launch of an F-4 aircraft, where the pilot is already heavily taxed with the demands of flying the aircraft, it is highly recommended that the command selector switch be positioned to OPEN and that the RIO be briefed and charged with the responsibility of initiating the sequenced ejection should the requirement arise.

A recent NATOPS change allows you to do just that as a squadron policy option. In the meantime work is continuing to improve the overall envelope of the H-7 escape system.

NavAirSysCom Comment on

F-4 Canopy Jettison

CONCERN has been expressed by various fleet activities that adverse forward pressures on the front canopy result when the rear canopy is jettisoned first. The McDonnell-Douglas Corporation recently conducted flight tests which investigated canopy pressures and resulting hinge moments with the aft canopy removed. All flight tests were conducted at stabilized flight conditions or during controlled coordinated maneuvers. No unusual attitudes were investigated.

Test results show that adverse pressure levels on the forward canopy increase principally with Q or speed and attain significant proportions at high aircraft velocities. The adverse pressures are insignificant at landing and takeoff speeds. When a finite time delay occurs between aft canopy and forward canopy jettison, the present forward canopy actuator removal capabilities are marginal above 500 kcas or .8 mach, whichever occurs first. F-4 sled and laboratory tests indicate that sequenced ejections will increase the aircraft speed at which canopy removal can be accomplished by the forward canopy actuator.

An ECP (Engineering Change Proposal) is being requested from McDonnell-Douglas for the addition of thrusters on the forward portion of the front canopy sills. These thrusters will lift the leading edge of the canopy two inches. This will eliminate canopy jettison problems associated with the adverse pressure patterns. As an interim measure, it is recommended that:

- Whenever possible, ejection should be below 500 kcas or .8 Mach, whichever is lower.
- Sequential ejection be utilized whenever feasible.

It should be brought to the attention of all aircrews that with the rear canopy already separated from the aircraft manual jettison of the front canopy could prove most difficult, if not beyond the physical capabilities of the pilot at higher speeds.

Adapted from a NavAirSysCom msg.

NavSafeCen Recommendations

NavSafeCen has recommended that until the problem cited in the message can be permanently resolved, *urgent* changes be incorporated in the ejection procedures sections of the F-4 A/B/G/J aircraft and RF-4 aircraft NATOPS manual, providing the following:

a. When it is not possible to achieve an ejection airspeed below 500 kcas or .8 mach and time permits, the following interim ejection procedure should be used:

(1) Pilot jettison the forward canopy using the emergency canopy jettison handle and insure its separation prior to any further ejection action.

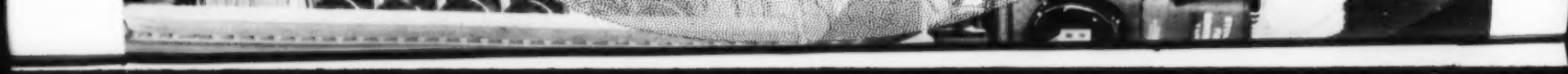
(2) RIO eject.

(3) Pilot eject when assured RIO has departed the aircraft.

b. Add as a warning:

"In aircraft equipped with the H-7 seat it is essential that the pilot not initiate a sequential ejection after the forward canopy has been jettisoned. Pilot initiation of sequential ejection under that condition will result in immediate ejection of the pilot while simultaneously initiating a sequential ejection of the rear seat. A high risk of seat to canopy, seat to seat collision or burning of the rear seat occupant by the front seat rocket would then be present."

It should be noted that CNO approval/disapproval of these NATOPS change recommendations is pending, awaiting results of flight tests by McDonnell-Douglas. ◄



Target of Opportunity

By LCDR C. Crutchfield

THE MISSION for the well-qualified P-3 ASW crew was to detect a *target of opportunity*. The scheduled takeoff time was 1900 and the entire crew had anticipated the mission as an opportunity to prove their worth against one of the fleet's newest submarines. They were ready in all respects, having only recently returned from a spring ASWEx as an "Alfa" crew and even more recently having achieved excellent results in several ASW exercises – "best darn crew in the best darn squadron."

As the 1630 brief time approached, the enthusiasm and excitement grew steadily. The weather forecast called for favorable conditions and everything appeared to be in readiness for the mission. At 1730, after a thorough brief by OpCon, the crew dispersed to complete the countless necessary details which make a successful ASW launch.

While the pilot filed a flight plan, the copilot reported to maintenance control and began reading the previous yellow sheets for the assigned aircraft and checking the aircraft register to insure the advantage of a fully-equipped ASW platform. No previous discrepancies were overlooked. Nothing must be left to chance.

At this time the radar-MAD operator entered Maintenance Control and reported that the ASN-42 inertial platform would not align and that the MAD amplifier would not preflight within acceptable NATOPS parameters. Because of the importance of the mission and because the scheduled launch time was rapidly approaching, all available maintenance personnel shifted into high gear in an attempt to repair the inoperative systems. At 1830, just 30 minutes prior to the scheduled launch, the sun set and so – for that matter – would that plane for the remainder of the night. The necessary repairs could not be effected and the decision was made to take another aircraft. The flight crew shifted their equipment and once more began the tedious, demanding task of preflighting. Now time was at a premium. The night check crew assisted in order to expedite the takeoff. The only discrepancy detected in the preflight was that the port engine-driven compressor was low on oil. Only the simple task of refilling the EDC remained. The time was now 1925. The crew and maintenance personnel all congratulated themselves on having selected the best possible backup aircraft and, better yet, on having conducted a thorough preflight in record time. Taxi, takeoff and climb were all routinely completed. Events which followed, however, could not by any stretch of the imagination be categorized as routine.

Passing through 3000 ft, the fire warning horn sounded and the warning light for the No. 3 engine illuminated. The flight engineer called out, "Fire on No. 3." The pilot verified engine No. 3 and ordered, "Feather No. 3." The E-handle was pulled, the HRD button was pushed, prop rotation stopped, the fire warning light went out and the aft observer reported no evidence of fire. Everything worked as advertised. The entire crew assumed a feeling of quiet satisfaction from their ability to cope with emergency situations.

The PPC dutifully noted that the aircraft had 53,000 lbs of fuel on board and gross weight was 120,000 lbs. As the PPC made plans to return to homeplate with the intent to burn down to landing weight, the copilot called out, "Prop pump light on No. 2." This new malfunction now required the PPC to make a rapid analysis of available courses of action. Two-engine flight was more than even an aviator with his ability and years of experience cared to contemplate. "But after all," he thought, "that's what the book calls for. When you get a prop pump light without overspeed, *feather*. But wait! Didn't I just note my gross weight was 120,000 lbs? I don't know for sure if we can fly on two engines at 120,000 lbs." The flight engineer and the copilot expressed the same doubt and all the while the prop

pump light glowed brighter and brighter. The navigator was summoned to check the performance section of the NATOPS manual and, after a few very long minutes, confirmed that they could barely maintain altitude on two engines. This was not consoling to say the least so the PPC elected to leave the No. 2 engine on the line. He recognized that with a prop pump light, overspeed was a very real possibility but when weighed against the alternative of feathering the engine and trying to make it back on two, he felt that he had little option.

The pilot made the smoothest landing of his career.

The aircraft commander elected to proceed to a field adjacent to home plate to take advantage of the longer runways available there (12,500 ft) in the event of a pitchlock on the No. 2 engine. He made the smoothest landing of his career (all four years) and, after the engines were secured, allowed himself the feeling of slightly nervous elation that comes to a pilot after a precarious situation has been handled successfully.

To conclude this story, the harrowing experience which this crew underwent need not have occurred. Investigation of the No. 3 engine revealed a faulty fire warning sensing element but the crew had no alternative but to feather that engine. However, inspection of the No. 2 engine revealed that the retaining pin for the cap of the pressurized prop sump was only partially installed, allowing the escape of prop control oil and illuminating the prop pump light. It was simply a "fail to" on preflight precipitated by a desire to launch speedily. A "fail to" which when coupled with another emergency, as in this instance, might well have ended in disaster. A "fail to" which caused one of the crew members to remark, "Who was the target of opportunity – USS Submarine or – *us*?"

Simulated Emergencies

THE PRACTICE of testing pilots and aircrewmen during flight is tried and true. Anyone in a flight status is subjected to many check flights during his career and must accept the check ride as a step in qualification or requalification. The process leading up to the check ride usually consists of a series of classroom lectures, outside study, a written examination or two, perhaps an oral examination, a thorough check ride briefing and the final operational test. Since aviators are automatically considered to be capable of handling normal operations in type, the instructor is far more interested in seeing the reactions that occur and the procedures utilized during out-of-the-ordinary situations.

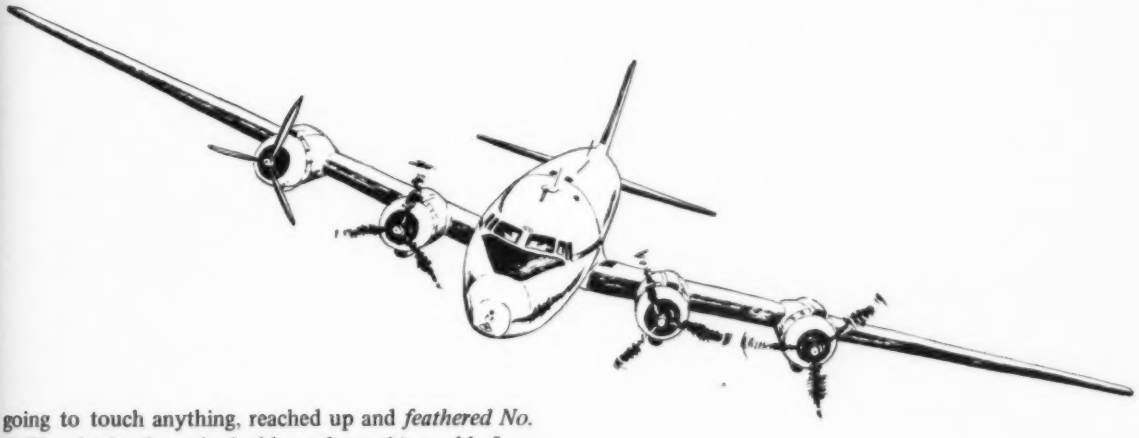
With the advent of NATOPS most of the guesswork and uncertainty about specific steps or sequence of steps has been eliminated. Emergency procedures have been developed for just about every conceivable situation. These procedures have been written by contractors and developed by operators through experience as the best way to handle specific problems. The pilot or aircrewman who knows and follows these procedures is usually kept away from further complications.

Check pilots and crewmen, when conducting check rides, must ensure in the briefing that those being checked understand, *without question,* the degree of realism expected. Obviously the purpose of the flight is to observe reactions and corrective procedures of the "students" under a given set of circumstances. There is little value in being vague or confusing in the introduction of emergencies. This negates the purpose of the check. There is also little value in introducing multiple emergencies which leave insufficient time to react to any single one. It is not intended in this discussion to abolish compound emergencies but merely to point out that no crew can simultaneously take a generator off the line, shift fuel tanks, fight an inflight fire and feather an engine. One emergency at a time, with an interval to observe and critique the procedures used, is of much more value than introducing tasks which are unrealistic, cannot be completed and lead to frustration.

Another important aspect of any check ride, or training hop for that matter, is never to simulate an emergency by creating conditions which will jeopardize the safety of the plane and crew. For example, a C-54

pilot was taking a TPC renewal check and the check pilot had carefully briefed the pilot and the flight engineer that frequent *simulated* engine failures would take place and each time they would *simulate* feathering procedures. As the pilot executed a four-engine GCA waveoff (the first time in two hours he had had four engines) the pilot was advised he had lost No. 3 which was reduced to 10 inches MAP. The pilot directed the copilot (check pilot) to simulate feathering the prop. The flight engineer, when he realized the copilot wasn't going to touch anything, reached up and *feathered No. 4.* The check pilot, who had been down this road before, merely pushed up the power on No. 3 when the pilot said, "Give me maximum power on No. 3 – this is no drill!" If the check pilot had put the mixtures in idle cutoff (instead of pulling the power back), or if the emergency had been simulated before the waveoff started, the flight might have ended in an accident. A C-54 with only a training load performs beautifully on three but very poorly on only two!

In another case (a routine training flight in a C-121) a student pilot and a student flight engineer allowed things to get out of hand. A blower shift had been made at 10,000 ft and the student pilot was to continue climb to 14,000 ft. A simulated fire in No. 4 engine was initiated by the instructor engineer just as high blower climb power was set to continue climb. The student pilot called for 2400 rpm which was set by the student engineer. It was then noted by both student engineer and instructor engineer that 46 inches MAP was set. The student engineer called overboost as the instructor pilot reduced power to 40 in MAP and the student engineer advanced the RPM to 2600 on No. 1, 2 and 3 engines. When a fire in No. 4 had been simulated the engine was set at zero thrust. The combination of student pilot and student engineer was responsible for a mix up in signals. The pilot should have taken control of the power. Fortunately no jugs came flying through the cowling but when the plane returned to base all three overboosted engines had to be changed. The C.O. pointed out in his endorsement that the instructor pilot and instructor engineer each contributed to the incident when they allowed a simulated emergency to be layered upon a straightforward blower shift evolution by inexperienced trainees. Neither instructor should have introduced a new training evolution until the one in progress had been concluded. The C.O. further commented that a continuing program is under way to carefully coordinate pilot and flight engineer training to ensure that ample time exists between training evolutions *(and we assume determination of which instructor has the whip at any given time. Ed.)*



Pilots and flight engineers should handle simulated and actual emergencies in the same manner, i.e. completely analyze the situation before taking action rather than compound the problem by doing the wrong thing hastily. Granted that certain emergencies such as landing pattern engine failures in single-engine aircraft, mid-air collisions, etc. require instantaneous reactions, but seldom does a system malfunction occur without either a warning or a reasonable amount of time to perform calculated, unhurried procedures. The best insurance against aggravating an undesirable situation is the thorough knowledge of emergency procedures and the calm execution of the correct checklist after assessment of the problem.

Beware the Shortcut

THE PLANE captain was refueling an E-2A aircraft. It had been griped three times for fuel leaking out of the vent pipe during pressure refueling. Because of this the plane captain plugged the vent with a plastic flashlight wand to prevent leaks while he proceeded to pressure fuel the bird for a night FMLP session. Unfortunately, upon completion of fueling he forgot to remove the wand.

The aircraft commander and copilot conducted their preflights by flashlight, both noting what they believed to be an added extension of the fuel vent pipe but neither mentioned it to the other. Neither had flown this particular bird since its recent arrival from PAR. The wand was jammed into the pipe with the open end pointed aft; thus, it appeared to be a piece of pipe.

The aircraft launched on its scheduled mission climbing to 6000 ft to dump to landing weight. When the dump switch was placed to ON, the fuel level gages showed a decrease but appeared to freeze at about 3200 lbs per side. After the fuel gages had remained stationary for a couple of minutes the dump was secured and the fuel level circuit breakers were cycled with no apparent change in indication of the gages. The dump was again selected and its circuit breaker was cycled. Still no change in the gages.

The dump was secured again and the aircraft commander moved from the copilot's seat to the back of the aircraft to check for fumes. The dump switch was reselected to ON and the plane commander felt the dump pipe, positively noting that the dump was not operating. All indications were that the fuel gages were correct and *the dump was not operating properly.* Despite this malfunction, a decision was made to complete the flight and they proceeded to burn down to landing weight.

The burn-down was accomplished at 2000 ft with max continuous power, gear and flaps down. The aircraft was then cleaned up and entered the break at 800 ft. Three night FMLP periods were completed and the aircraft returned to the line. It was only then that the exact cause of the trouble was discovered.

ANYMOUSE

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. As the name indicates these reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

— REPORT AN INCIDENT, PREVENT AN ACCIDENT —

This could have developed into a hairy situation as there is only one fuel vent on the E-2A and there is a possibility of collapsed fuel lines, even with four submerged boost pumps, had pressure in the tanks become low enough. A double flameout at night in the 350 ft FMLP pattern could have occurred had fuel lines actually collapsed.

The whole thing could have been prevented by fixing the discrepancy rather than plugging the vent; by the plane captain removing the wand at the completion of fueling or by either pilot removing the wand – had they realized what it was.

In the future, this plane commander will land and investigate such difficulties rather than continuing on in blissful ignorance.

E-2A Anymouse

This a good example of the manner in which a relatively minor malfunction can grow into a problem of serious proportions. In this case, it is indeed fortunate that the fuel lines did not collapse. That this did not occur is probably due only to the lack of precision fit between the aircraft fuel vent pipe and the plastic flashlight wand. However, since the dumping of fuel apparently ceased at about 3200 lbs, the fit of the wand must have been sufficiently good to seriously restrict the passage of air.

Maintenance personnel should never fall into the habit of learning to live with discrepancies however minor they appear to be. Likewise, pilots should not fail to investigate anything which does not look right on their preflight. Nor should any pilot fail to give the most serious attention to aborting any flight when an important aircraft system fails to operate as expected.

Finally, all hands should beware of shortcuts – they just don't pay in the long run.

Recommends Helmet Visor

I WAS on my fifth T-34B solo flight over Magnolia and in bad weather. I trimmed my plane and opened the canopy only to be greeted by rain and sleet. My visor was full of spots so I raised it. Then water, or something, got into my eye. It seemed like an eternity before I could see anything. While being so distracted I inadvertently descended to 500 ft before regaining full vision. All this was prior to the 180-degree position.

I recommend all solos keep their visors down at all times.

"Hot Mags" Mouse

We're with you. Keeping the helmet visor down will not only help prevent water and sleet from interfering with vision but will also serve to minimize injury in case of bird strike.

S-2E Autopilot Antics

HI THERE, *Stoof* Drivers! Do you wear your kneeboard on your right leg while in the left seat? If so, read on.

During a recent night carrier refresher period as we taxied up to the cat and tensioned out, the autopilot was accidentally engaged, a fact which was not noted by either pilot (possibly due to the tempo of night carquals).

As we went off the bow the aircraft pitched five degrees down and rolled about 15 degrees left wing down, making for some pretty wild antics by both pilots and really pumping up the old adrenalin.

Both pilots were well experienced first tour types – a CAPC in the left seat and a CA2P in the right seat.

It seems likely that this incident was caused by the pilot in the left seat accidentally hitting the autopilot engage switch with his kneeboard which was strapped on his right leg. Incidents such as this can be prevented by wearing the kneeboard on the left leg or not wearing it at all.

Stoof Mouse

Well said.

AQUARIUS January 20 to February 18: Watch for frozen plane captains and aircraft systems.

ELEMENT: Air – Always keep some between you and other aircraft.

LUCKY DAY: Wednesday – Good for mid-week workout so flight gear fits.

BEST TRAIT: Courageous – will help get through any tight situation.

WORST TRAIT: Stubborn – don't fight NATOPS.

Aquarius
Jan. 20-Feb 18

ARIES March 21 to April 20: Gusty X-winds – check your landing limitations.

ELEMENT: Fire – Know inflight procedures against your element.

LUCKY DAY: Tuesday – A good day to use procedures trainers and be ready for emergencies.

BEST TRAIT: Initiative – submit an incident before it's an accident.

WORST TRAIT: Hot-headed – don't blow your cool when your aircraft's not ready or clearance approved.

Aries
March 21-April 20

GEMINI May 21 to June 21: WW (Weather Warning) – avoid, avoid.

ELEMENT: Air – Ensure your element isn't inside your aircraft tires. (Use nitrogen.)

LUCKY DAY: Wednesday – Training day for the pilot's twin crew chief/copilot/RIO/BN.

BEST TRAIT: Adaptable – can follow change in clearance by knowing all instrument procedures.

WORST TRAIT: Changeable – don't be a Charlie Brown with a Megabuck Bird.

Gemini
May 21-June 21

Pisces
Feb. 19-March 20

PISCES February 19 to March 20: Beware limited vis – night/obscurations/fog.

ELEMENT: Water – Your element makes good "rocks" and bad rollouts.

LUCKY DAY: Friday – plan X-C thoroughly.

BEST TRAIT: Analytical – Knows his aircrafts systems – recognizes malfunctions immediately and writes them up clearly.

WORST TRAIT: Indecision – correct procedures cure this.

Taurus
April 21-May 20

TAURUS April 21 to May 20: Turbulence – on airways listen for PIREPS ahead and avoid.

ELEMENT: Earth – don't impact your aircraft with your element.

LUCKY DAY: Friday – TGIF – unwind safely.

BEST TRAIT: Down to earth – get your aircraft there on speed/attitude.

WORST TRAIT: Bull headed – don't maintain old ways because it's always been that way.

Cancer
June 22-July 22

CANCER June 22 to July 22: Flying after too much sun, water and skin diving can be painful.

ELEMENT: Water – Can you find your element in woods/desert/mountains?

LUCKY DAY: Monday – ASO's start week with accident survey.

BEST TRAIT: Goal directed towards zero defects.

WORST TRAIT: Procrastination – do it now, prevent an accident.

...SCOPE

LEO July 23 to August 22: Avoid thunderstorms now.
ELEMENT: Fire – keep your element inside your engine.
LUCKY DAY: Sunday – return early from X-C.
BEST TRAIT: Born leader – brief formation flight thoroughly, then lead it.
WORST TRAIT: Boastful – don't fly 'em like you tell 'em at Happy Hour.

Leo
July 23-Aug. 22

LIBRA September 23 to October 22: Obscuration – the ceiling's there but you can't find the visibility.
ELEMENT: Air – suck this, not FOD, into your engine.
LUCKY DAY: Friday – A check ride to finish the week.
BEST TRAIT: Idealistic – believes accidents don't happen – they're caused and tries to eliminate causes.
WORST TRAIT: Hesitant to assume responsibilities – grab your job, people and aircraft.

Libra
Sept. 23-Oct. 22

SAGITTARIUS November 22 to December 21: Jet Stream – increase fuel reserve flying westward.
ELEMENT: Fire – what's the procedure for your element?
LUCKY DAY: Thursday – bad night for T.V. – good for flying.
BEST TRAIT: Keen insight – know your people and aircraft.
WORST TRAIT: Inconsistency – better steady than super today and sour tomorrow.

Sagittarius
Nov. 22-Dec. 21

Virgo
Aug. 23-Sept. 22

VIRGO August 23 to September 22: Foggy mornings – watch the dew point spread.
ELEMENT: Earth – here's where birds get fixed – write 'em right.
LUCKY DAY: Wednesday – AOM weekly NATOPS quiz.
BEST TRAIT: Meticulous – shows attention to check lists and procedures.
WORST TRAIT: Uncooperative – work together, it's your reputation . . . or life.

Scorpio
Oct. 23-Nov. 21

SCORPIO October 23 to November 21: Hurricanes – be ready for HurEvac.
ELEMENT: Water – your element hydroplanes you on runway.
LUCKY DAY: Tuesday – Check write-offs for your gripes on past yellow sheets.
BEST TRAIT: Determination – the quality assurance will catch all maintenance oversights.
WORST TRAIT: Supersensitive – accept constructive correction.

Capricorn
Dec. 22-Jan. 19

CAPRICORN December 22 to January 19: Ice – decrease lift and increase rollout.
ELEMENT: Earth – keep it off your windshield.
LUCKY DAY: Saturday – don't rush job to finish early.
BEST TRAIT: Persistence – sees all maintenance and flight crews trained properly.
WORST TRAIT: Impatience – allow 30 minutes to file a flight plan.

2nd MAW Hot Dope Sheet
WING WARLOCK

Scenario for Survival

Time: Warm afternoon.
Place: NAS Anywhere.
Action: Pilot mans T-28 for combat readiness training mission.
Costume: Indian orange flight suit.
Anonymous voice offstage: "Indian orange flight suit?"
Pilot: "Well, I thought I had a choice."

This same plot has infinite variations: pilot in oxygen-equipped aircraft mans plane without oxygen mask . . . crewmember suffering from an advanced case of Red Baron syndrome arrives with snappy nylon scarf . . . jet pilot shows up in Wellington boots.

IN A random review of recent accident and incident reports, over and over again one fact turns up: pilots and aircrewmen are not wearing personal survival gear when they should be or they are wearing what shouldn't be worn at all. How come? Well, aside from the few persons who deliberately choose to disregard requirements and safety, we think the reasons are ignorance of what is available, ignorance of what is mandatory and the mistaken idea that, in the circumstances in which the flight is taking place, there is a choice.

The basic document on minimum requirements for flight safety and survival equipment is, of course, OPNAVINST 3710.7D, General NATOPS. Survival equipment requirements are further amplified by the specific model NATOPS Flight Manuals and various directives.*

If you have dutifully read the footnote below you are probably settling back with a righteous air of how-can-I-possibly-be-expected-to-keep-up-with-all-*that*? The basics are in General NATOPS and the specifics are in your model aircraft NATOPS. Your aircrew survival equipment maintenance men, your squadron survival officer and your squadron flight surgeon have the word on the finer points. Sorry, multiplicity of directives *won't* get you off the hook. The following article is a one-shot affair on the General NATOPS flight safety and survival equipment basics to fill in any embarrassing gaps which may exist in your equipment knowledge. Supplement it with some basic research of your own and nobody will ever find out that you didn't know everything all along!

Protective Helmets

General NATOPS requirements: The latest available approved type protective helmet, adorned with high visibility paint/reflective tape, shall be worn by all crewmembers and passengers in combatant aircraft and single engine training aircraft. Crewmembers of patrol and C-1/2 aircraft shall wear the protective helmet during takeoff and landing operations, and may stow in a predesignated standard stowage space during other flight operations. The wearing of the protective helmet in all other Navy aircraft is encouraged.

The articles of flight gear shown on page 27 are (1) APH-6CLSI Helmet (2) A-13-A Oxygen mask (3) I.D. tags (4) Nomex flight suit (5) Anti-G suit (6) Mk-5A Anti-exposure suit (7) SEEK-2 survival kit (8) Survival knife (9) Mk-79 Pengun (10) Penlight (11) Impact-resistant flying boots (12) Nomex/leather summer flight gloves.

*These directives include BACSEBs (BuWeps Aviation Clothing and Survival Equipment Bulletins), ACSEBs (Aviation Clothing and Survival Equipment Bulletins), ASCBs (Air Crew Systems Bulletins), ACSCs (Air Crew Systems Changes), CSEBs (Clothing and Survival Equipment Bulletins), CSECs (Clothing and Survival Equipment Changes), messages and the new Air Crew Systems Manuals. Of this latter series only NAVAIR 13-1-6.1, Inflatable Survival Equipment and NAVAIR 13-1-6.2, Personnel Parachutes, have been issued.

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BACSEB 1-60A establishes an important exception to this requirement: non-use of high visibility paint/reflective tape on helmets in areas where easy detection of downed pilots and aircrewmen is undesirable. Although many models of helmets are still in the fleet, only two helmets, the APH and the SPH, are currently being procured in quantities. (The AOH helmet is being bought in limited numbers.) Modifications to the APH are installation of the dual visor kit, sonic ear cups, edge roll modification (CSEC 29) and "butterfly cut" in the visor housing to improve visibility with the dual visor kit (Interim ACSC 173, NADC msg 092004Z of May 69).

The purpose of the dual visor kit is to permit you to fly with your visor down at all times. In a number of situations this is a distinct advantage – when a bird shatters your canopy or windscreen, when your canopy unexpectedly departs the aircraft or when you unexpectedly have to depart the aircraft yourself. Depending on the circumstances, keeping the visor down can markedly improve helmet retention, lessen windblast injury and keep those birdbits out of your eyes. The SPH-3B comes equipped with a dual visor. There are at present no installation kits for other SPH helmets.

Installation of sonic earcups in APH and SPH helmets has considerably improved noise attenuation. During the first few months of the introduction of the new earcups to the fleet, failure of some squadron loft personnel to install a small rubber grommet (P/N 67A1809-2, Stock No. RM-5325-814-0430-LXIX) cancelled out the sound-attenuating qualities of the earcups.

Oxygen Masks

General NATOPS requirement: Except as stated in paragraph 825a, General NATOPS *(unpressurized aircraft)*, all occupants aboard naval aircraft will use supplemental oxygen on flights in which the cabin altitude exceeds 10,000 ft. When all occupants are equipped with oxygen, unpressurized aircraft may ascend to FL 250. When minimum enroute altitudes or an ATC clearance requires flight above 10,000 ft in an unpressurized aircraft, the pilot at the controls shall use oxygen. When oxygen is not available to other occupants, flight between 10-13,000 ft must not be longer than 3 hours and flight above 13,000 ft is not authorized . . .*(Please see General NATOPS for use of oxygen equipment in aircraft flown above 10,000 ft MSL when cabin altitude is maintained at 10,000 ft or less. – Ed.)* In pressurized combat and combat training jet aircraft, oxygen shall be used by all crewmembers from takeoff to landing. Emergency bailout bottles, where provided, shall be connected prior to takeoff. Whenever practicable 100 percent oxygen shall be used for takeoff and landing.

It seems pretty obvious that when you are using an oxygen mask you shouldn't smoke, yet people continue to get caught in this trap. (Remember the classic case reported in the September 1966 APPROACH in which the pilot disconnected the left side of his mask to "light a match to get rid of some raveled ends on my torso harness chest strap"? Consequences: a torching fire in his mask and second and third degree burns of his face and hands requiring plastic surgery.) The Naval Safety Center has recommended that pilots and crew secure the source of oxygen if loosening the mask from the face in flight is necessary.

Identification Tags

General NATOPS requirement: Identification tags shall be worn by all flight personnel when engaged in flight operations.

ID tags are under the cognizance of the personnel office at the local level. BuPers Manual, Art. B-2102 refers.

Anti-G Suits

General NATOPS requirement: Anti-blackout suits shall be worn and connected in aircraft equipped for their use on all gunnery, dive-bombing, rocket, strafing, simulated combat and acrobatic flights and on all other flights where high G forces may be encountered.

The current anti-G suit is the Mk-2A. A new idea currently being evaluated is the "mini suit" which stops at the knee. ACED (Aerospace Crew Equipment Department) has 159 mini suits under evaluation. Modifications resulting from an initial evaluation by Pax River are being incorporated and the suits will then be re-evaluated.

Fire Retardant Flight Suit

General NATOPS requirement: This suit shall be worn by all crewmembers and passengers in combatant aircraft and single engine training aircraft and is encouraged in all other Navy aircraft.

The nomex flight suit is now the single standard

THIS IS YOUR PILOT!... ON TODAY'S FLIGHT WELL BE FLYING AT AN ALTITUDE OF 300 FT., AT 5 MPH,.....
THE TEMPERATURE OUTSIDE IS 30°F. AND THE CABIN PRESSURE IS MAINTAINED AT....
WOULD YOU MIND CANNING THE IN-FLIGHT JARGON?,... I'M TRYING TO CATCH A FEW WINKS!

summer coverall for *all* personnel assigned to flying duty. (NAVAIRSYSCOM msg 112212Z of July 69 refers. This message further directed that cotton coveralls no longer be issued to or used by aircrewmen.)

The nomex summer flight suit, now generally available, is a great improvement over previous suits in fire protection. Nomex is a high-temperature resistant and inherently flame retardant fabric with no hot melt or drip characteristics. It will not support combustion but will begin to char at 700° to 800°F. Because the fire retardancy is inherent in the nomex fiber itself, the suit can be washed as often as necessary without compromising its fire protection. Nomex requires no renewable flame retardant treatment as did the cotton flight suit. (ACSB 127 gives laundering information.)

Nomex is lightweight and the fabric is tough. However, like other synthetic fabrics, it is non-absorbent and for this reason cotton underwear should be worn for maximum comfort.

The Naval Safety Center has a number of instances on record in which the nomex suit protected the wearer from burns in fires following aircraft accidents or mishaps. For maximum fire protection the sleeves of the nomex flight suit must be worn down and closed at the wrists.

A small number of two-piece knitted nomex suits are being evaluated by Marine pilots.

General NATOPS does not mention the two-piece winter flight suit per se and there are no directives on it. At one time this suit was used as the liner for the Mk-4 anti-exposure suit. The CWU-1/P, the Air Force intermediate winter flying suit designed for temperatures from 50° to 86°F., is authorized only for flights when the potential survival situation would be over land. CSEB 19 refers.

Anti-Exposure Suits

General NATOPS requirement: The latest available type continuous-wear or quick-donning anti-exposure suits, as appropriate, shall be provided for crewmembers and passengers of operational type naval aircraft on overwater flights proceeding beyond gliding distance from land when the water temperature is 59°F or below, the outside air temperature (OAT) is 32°F or below, or the combined OAT/water temperature is 120°F or below. The final determination with regard to the actual wearing of anti-exposure suits shall be made by the commanding officer of the unit concerned based on all pertinent factors . . . *(Please see General NATOPS for amplification. – Ed.)* Wet suits are authorized for rescue aircrewmen.

The latest anti-exposure suit in the fleet is the Mk-5A. Type commanders have released a number of ventilated wet suits to squadrons for pilot and air crew evaluation. Naval Air Systems Command is about to do the same with the new nomex-covered foam rubber suit with early fall the target date for the beginning of fleet evaluation. A TSOR (Tentative Specific Operational Requirement) for an anti-exposure system has been submitted by APSET (Aviation Personal and Survival Equipment Team) to the Chief of Naval Operations for approval and funding. For the first time parameters will include other-than-emergency requirements, taking into consideration, for instance, cockpit and readyroom conditions. However, these developments are somewhere down the pike and at the present time we have to live with what we have.

Survival Knife

General NATOPS requirement: All crewmembers in combatant aircraft and single engine training aircraft shall carry an approved survival knife with sheath and the carrying of such a knife in all other Navy aircraft is encouraged.

Because of the potential for injury in bailout or ejection situations if the survival knife breaks through its leather sheath, it is wise to have a metal tip installed on the sheath. At this writing no directive covers this modification but reportedly this requirement will appear in future MilSpecs.

Flashlight

General NATOPS requirement: A flashlight shall be carried in all Navy aircraft on all night and instrument flights.

Signal Devices

General NATOPS requirement: All crewmembers in combatant aircraft and single engine training aircraft shall carry a pistol with tracer ammunition for all night flights and for all flights, night or day, over water or sparsely populated areas. An approved signaling device is authorized for use as a substitute for the .38 caliber service revolver.

The Mk-79 pen gun is an approved signaling device for use as a substitute for the .38 caliber service revolver. (CNO ltr 6063P50 of 30 June 1964 refers.) A requirement has been established by Chief of Naval Operations for a red-and-green pen gun-launched signal, the Mk-80. Additionally, a new .38 caliber Mk-140 green/red flare is under procurement.

Personal Survival Kit

General NATOPS requirement: All crewmembers in combatant aircraft shall carry essential items of survival equipment such as matches, compass, etc. and the carrying of a personal survival kit in all other Navy aircraft is encouraged. Additional items shall be those appropriate to the area of operation and as directed by operational commanders.

The SEEK-2 is the latest survival, escape and evasion kit and should be carried in the SV-2 survival vest.

Incidentally, while there is nothing to stop you from carrying extra equipment, if you waddle around with extra guns, bolo knives, etc., you may be doing yourself more harm than good. You may compromise your trajectory in the event of an ejection . . . extra weight is detrimental in the water if you don't have time to inflate your life preserver during descent . . . extra weight and bulk may interfere with the agility you are counting on

if you have to perform such operations as manual canopy release. As we've said before, don't be a teddy bear!

Gloves

General NATOPS requirement: Pilots and aircrewmen shall wear anti-skid/slip gloves to protect their hands from possible flash burns. (If anti-skid/slip type gloves are not available, substitute gloves shall be utilized. These may be removed on low-level overwater flights and launch or recovery operations aboard ship.)

The new nomex/leather summer flight glove (Type G5/FRP-1, MIL-G-81188), an anti-skid/slip type glove, is the only glove authorized for wear by all naval and Marine Corps pilots and crewmembers. This glove replaces the Navy all-leather type B3A glove and the interim Air Force HAU-7/P or simplex glove. NavAirSysCom (by message 132229Z of June 69) advised all activities to remove the cotton/leather gloves from Flight Crew Issue and when requisitioning the nomex glove to use Advise Code 2B to insure that the cotton/leather glove is not substituted.

Life Preservers

General NATOPS requirement: Life preservers shall be worn during all seaplane operations and during landplane operations when flights are made beyond gliding distance from land. When taking off or landing at an airport where the takeoff or approach path is over water and, in the event of a mishap, there would be a significant risk of a ditching, life preservers shall be used. Deviations from the requirements of this paragraph may be authorized by commanding officers for transport aircraft but in all cases life preservers shall be available in the immediate vicinity of passengers and crewmembers for the flights specified in this paragraph. Passengers shall wear life preservers as ordered by the pilot in command. At the discretion of the pilot in command, occupants of multi-engine patrol type aircraft (less the pilot and copilot) may remove life preservers and stow in a predesignated, readily accessible stowage space during overwater flight operations above 1000 ft.

Life vests in current issue are the Mk-2, Mk-3C, LPA-1 aircrewman's life preserver and LPP-1 passenger's life preserver.

The LPA-1 replaces the Mk-2 and Mk-3C on availability. Deploying squadrons are at the top of the issue list.

The LPA-1 is designed for comfort and compatibility with all Navy flight clothing inside and outside the aircraft and for equipment compatibility, safety and performance when inflated. The LPA-1 weighs 4 lbs and when properly inflated provides at least 65 lbs of buoyancy. It will automatically rotate a face-down survivor and support him in a 45 degree face-up position in the water. The LPA-1 can be inflated during parachute descent with no discomfort to the wearer of either an integrated or non-integrated parachute harness and with no adverse effect on other survival gear. You can release and get rid of the non-integrated parachute harness without removing or releasing the inflated LPA-1.

The LPA-1 has two optional pouches for attachment at either side of the waist section. Two Mk-13 Mod O day/night signal flares go in the right pouch and two dye markers in the left.

The LPP-1 life preserver is designed and authorized for passengers in civilian or service dress flying in cargo or transport aircraft. When modified, it is also authorized for use by Navy and Marine helicopter aircrewmen using the T-65 body armor. When the LPP-1 is available, use of all other life preservers by personnel authorized the LPP-1 is to be discontinued.

The LPP-1 with equipment weighs approximately 3 lbs and when fully inflated provides a minimum of 35 lbs of buoyancy.

The Air Force LPU-2/P and LPU-3/P are authorized *only* when modified for use with the SV-2 survival vest in accordance with Interim Air Crew Systems Bulletin 160. Interim Amendment 1 (NADC msg 032020Z of June 69) extends the cancellation date of the basic directive to continue authority to use the LPU type preservers (modified for use with the SV-2 survival vest) until sufficient quantities of LPA-1 life preservers become available. Inspection and maintenance of the LPU type preservers is to be accomplished during the initial installation of the LPU on the SV-2 and at every subsequent periodic preserver inspection. The flotation cells should be inspected for operation and leakage in accordance with section 11-2 of NAVAIR 13-1-6.1, Inflatable Survival Equipment Manual. Instructions amplifying Interim Air Crew Systems Bulletin 160 and Amendment 1 were published in the December 1968 Personal Survival Equipment Crossfeed.

Boots

General NATOPS requirement: Flight safety boots/field shoes (ankle high lace type) shall be worn by all crewmembers and passengers in combatant aircraft and single engine training aircraft, and their utilization is encouraged in all other Navy aircraft.

The above requirement has been strengthened by ACSB 208 which states that the Chief of Naval Operations has authorized the impact-resistant flying boot (Mil-B-21408) as the single item of supply and allowance for all Navy/Marine pilot and non-pilot crewmen.

So there you have a quick rundown on minimum flight safety and survival equipment requirements. It's not possible to cover everything in one article but if something in these few pages sends you to your locker or trunk of your car to take inventory and cart your outdated items to flight gear issue for exchange we'll be more than satisfied . . . *Indian orange* flight suit? ◄

notes from your flight surgeon

Wash Job

A MAINTENANCE duty crew was in the process of washing one of the squadron's P-3s. Several of the men were standing on the raised platform of a maintenance master truck and washing the upper fuselage, while an AO3 was washing the underside of the wing. One of the men working near the main cabin door accidentally hit the AO3 in the eye with a stream of high pressure water.

The AO3 apparently considered the incident to be of no importance and didn't realize that he had been injured until later that evening when his eye began to swell. He finally got around to reporting for medical examination of the eye the *following night* and was immediately hospitalized with an internal hemorrhage of his eye.

As a result of this mishap the squadron now uses plastic goggles during all wash operations. Also, upper and lower surfaces of aircraft are no longer being washed simultaneously. We also might add that it's a good idea to report promptly for medical examination in the event of any kind of eye injury, regardless of how slight it might seem to be.

Edge Roll

DOES your helmet have the edge roll modification installed?

Flight surgeon comments in a recent MOR noted that although the requirement for the edge roll modification was issued in February 1967, no students and few instructors in his area have this change. He strongly recommends that, since this directive was issued to prevent neck injuries when the helmet assembly is subjected to a severe frontal impact along the leading edge, it be complied with as soon as practicable. In his opinion it would be preferable to modify helmets before they are issued to pilots.

Clothing and Survival Equipment Change 29, Helmet, Protective, Types APH-6, APH-6A, BPH-2, SPH-3; edge roll modification, 6 Feb 1967 refers. This directive calls for accomplishment of the modification by squadron level maintenance personnel or above as soon as possible not to interfere with flight operations.

Case In Point

SOMETIMES your hard hat protects you against inflight hazards that are almost impossible to predict. Consider this case in point.

An A-6 was joined up as slot-man in a four plane fly-over formation. The lead aircraft was an SP-2H and was flanked by A-3s on each side. The SP-2H had just completed a local training flight and the radio operator had been unable to reel in the trailing wire antenna.

Before the SP-2H had joined with the other aircraft the radio operator had cut the wire as directed by the plane commander; but he was not positive that it had fallen free.

The SP-2H pilot radioed the joining aircraft to check to see if the antenna had been jettisoned. Investigators later found that the A-6 pilot did see the trailing wire attached to the SP-2H but was unfamiliar with this type of antenna and failed to recognize it. As the formation accelerated the increased drag exerted on the conical shaped lead antenna weight pulled the antenna free of the SP-2H and it crashed through the A-6 bombardier navigator's overhead canopy. The BN felt something strike his helmet but he was uninjured. On postflight inspection the trailing wire weight was found inside the A-6 cockpit.

Improper procedure by the SP-2H crew in allowing aircraft to join up before they were assured the antenna was jettisoned has been cited as the primary cause of this mishap.

Piece of Cake

THE EJECTION and parachute landing were uneventful. The uninjured pilot accepted a ride from a local farmer to a farmhouse and called his squadron to relate all the information he had concerning the accident. He remained in the farmhouse eating cake and drinking coffee when the SAR helo arrived and began searching for him. He made no effort to signal the helo or to aid in his rescue. SAR personnel had trouble locating him but he was subsequently picked up by the helo.

The pilot was remarkably lax in attempting to aid his rescue.

Recommendation: It is reemphasized that all aviators must be familiar with the proper rescue procedures and, should bailout, ditching or ejection occur, give all assistance possible to rescue craft.

From an MOR

This is the true story of a night spent on the Ross Ice Shelf in Antarctica last October. The aircraft was an LH-34D, one of three operated by Antarctic Development Squadron SIX (VXE-6) in a 100 mile radius of McMurdo. The author, the squadron's maintenance administrative officer, ghosted the story for the pilot and crew.

It was not an Ice Night

By LCDR R. G. Linsley

"McMURDO CENTER, this is Gentle One. I'm nine miles out of Williams Field at 300 ft and I can't even see Observation Hill. I'm going to set it down right here until the weather clears."

"Gentle One, Mac Center, roger. We'll advise VX-6 Ops. Keep your radios on."

The ice shelf of Antarctica's Ross Sea was over 50 ft thick but I still felt pretty insecure and insignificant as I set the chopper down in the middle of that desert of snow. The storm had jumped us suddenly and taken us completely by surprise. I suspected that it had been lurking behind Mount Erebus all the time waiting for a chance to get even with Operation Deep Freeze.

Survival? That was a lecture I had slept through during indoctrination last summer in Quonset Point. I think I had even signed the "All Officers Read Board," too, but hadn't given it much thought. Nobody ever went down on the "Ice."

I swallowed my stomach back down to where it belonged and told the crew that we'd probably see a hole in a few minutes. No sweat. After an hour and a half, I suspected that we might miss happy hour in beautiful downtown McMurdo. I ordered the crew to break out the survival sled. Might get in a little training. At least in Antarctica I didn't have to worry about it getting dark on me. Still, we might make the 1900 movie so I only had them take out the shovels and ice saw.

"O.K., crew," I said, "let's get us a wind break built. Weather is predicting high winds for later in the day and we might as well keep warm."

We dug a pit in the soft snow and used the blocks from our excavation to build a wall around three sides of the pit. The square-ended shovel worked swell but the trench shovel was worth next to nothing. I made a mental note to recommend its use as an anti-penguin weapon.

"Didn't any of you guys go to survival school?" I asked after several of the snow blocks disintegrated in our hands.

"No sir. We thought they only sent the aircraft commanders."

"Well, don't worry," I answered. "We'll learn together. Now let's try to stake down that cover over our castle. That should make it nice and cozy."

We quickly learned together that you don't stake down anything in soft snow. When it's 30^{0} below zero even the softest snow packs like warm dry sand.

The wind began to howl and the visibility got so bad that I couldn't see the helo from 10 ft away. I ordered the men not to go out of sight for fear of someone getting lost.

When we went into the chopper to brush the snow from our clothes, I called Mac Center and told them we were securing the radio and were going to camp out in the "Ross National Forest." That didn't exactly bring cheers from the crew but I wasn't feeling like Yogi Bear either.

We broke out the two tents and surprised ourselves by learning how easily they went up. The windbreak sheltered the two-man tents and kept them from being

buffeted by the fierce wind. It would have been better if we had had one four-man tent instead of the two little ones. At least we could have conserved heat, lived together and had a space large enough to cook in, especially since we might have had to live there for several days.

Once the tents were set up, we got the other gear inside. The air mattresses wouldn't hold air and even with the double tent lining under the flaccid mattress, I was so cold that my teeth were sending a morse code speedletter to the lieutenant detailer for getting me into this mess. We should have carried a piece of foam rubber on the deck of the cargo compartment or rolled up somewhere. It would have made an excellent insulator.

The emergency rations that we found in a bag tasted like Napoleon's leftovers. In Antarctica a man's morale is directly linked to his stomach. Our morale was shrinking in proportion to the tastelessness of the rations. The cereal, eaten without water, was dry and tasteless. When melted snow was added, it turned mushy and tasteless. When we finally got the stove lit we found the individual packets of tea and coffee to be pretty good but bulk lots of the stuff would have been easier to use – three guys wouldn't have to compete for the flame to brew their individual cups. I had visions of a couple of Slim Jims being washed down with three fingers of Johnnie Walker Red. I think soup would have been the easiest thing to carry and prepare. It could serve either as a hot drink or in larger quantities as a hearty meal. A load of Mrs. Grass's dehydrated chicken noodle would have lifted spirits almost as much as the Johnnie Walker.

Five hours later the wind died down to a dull roar and we started to break camp. We found that we had scattered small items of equipment such as tent stakes, candles and heat packets all over the ice. These could have been packed separately in small cloth bags, stencilled clearly and secured to whatever equipment they belonged to. We might have sorely missed the gear had it been blown away and our stay been longer.

The snowstorm gradually cowered back to its kennel behind Mount Erebus, Gentle One lit right off and the whup, whup, whup sounded mighty good in the cold air. Fourteen hours after we had gone down on the ice we were safe and snug in the capital of Antarctica.

They say that bad things usually come in groups. Mine did, too. Because of my newly-found vast experience in Antarctic survival I had to write a report of this incident and submit recommendations about safety, equipment and survival procedures to the Skipper. But, I'll tell you guys something. I was only too glad to do it. The Antarctic doesn't usually give a guy a second chance!

(Because of the experimental nature of VX-6's work, the types of survival gear carried are left up to the prerogative of the command. The commanding officer states that the recommendations from the pilot's report of this survival incident have been acted on to provide future crewmen the benefits of the lessons learned. – Ed.)

The time required for the helicopter rescue of an F-8 pilot, from parachute entanglement in the water, was considered by investigators to be "much too long." Although the plane guard helo was overhead in less than two minutes after the ejection, it took 35 minutes to retrieve the survivor – cold, wet and weary but uninjured. "You can't argue with success," the saying goes. Nevertheless, there was still considerable

Room for Improvement

AFTER engine failure following a normal cat shot, the pilot ejected at 300 ft in a quick reaction which probably saved his life. Ejection sequence was normal although he hit the water before the main chute could open fully. Inflating his Mk-3C under water, he surfaced in a calm sea, riffled by a 6 kt wind, and removed his oxygen mask.

The pilot now discovered that the shroud lines wrapped his feet and legs and his parachute risers were so tangled he couldn't even locate his koch fittings. He managed to partially free his feet. Because of the inflated Mk-3C the shroud cutter on his survival vest was inaccessible.

At this point the helo arrived overhead and, from an 18 ft hover, a wet-suited crewman jumped into the water to help him. The helo then established a 30 ft hover which it maintained throughout the rescue. A motor whaleboat from the plane guard destroyer stood by but did not come closer than 10 yds because of the rotor wash and the entanglement of the parachute in the helo rescue sling. But we are getting ahead of our story . . .

Unable to Cut Riser

Using his Navy issue survival knife, the helo crewman cut one of the pilot's parachute risers but could not cut the other. His knife was not secured with a lanyard as it should have been and before long he lost it. At some time during the cutting operations the lower chamber of the pilot's life preserver was punctured. Meanwhile, the rescue sling had been lowered. Fatigued by his efforts to stay afloat in the cold water and the struggle to free himself, the pilot got into the sling although he was still attached to his chute. He managed now to get the shroud cutter off his vest and he and the crewman each had a go at trying to cut the remaining riser. *(Although not mentioned in the investigation report, the nitrogen-powered pneumatic webbing cutter carried by many helicopter rescue crewmen would have been extremely handy here. – Ed.)*

Further Confusion

Further confusion ensued as shroud lines became tangled around the sling. Once this had happened the helo was committed to hover over the pilot. The rotor wash it created hampered the work of getting rid of the shroud lines. Due to the rotor wash the pilot and rescue crewman got separated several times. The pilot tried to signal the hoist operator to raise him out of the water to put tension on the shroud lines so they could be cut

more easily. Seeing both pilot and rescue crewman giving what he thought were thumbs up signals, the hoist crewman assumed the pilot was free of the chute and began to raise him. The parachute billowed and the pilot was lowered back into the water.

Drift Apart

By this time the survivor had drifted some 30 yds from the rescue crewman as the rotor wash pushed the chute away. The crewman gave the "take tension" signal to the hoist operator. Tension was now kept on the hoist cable enabling the pilot to see the entangled risers and cut them. This also towed the pilot back to the rescue crewman and both men were able to work together to free the parachute.

After some 15 minutes the chute was removed and the pilot was hoisted aboard the helo. He was now able to release both koch fittings from what was left of the parachute harness. A considerable amount of tangled shroud lines were freed from the hook, sling and pilot, the sling was detached and the hook was lowered to retrieve the crewman.

Consider Possibilities

Investigators discussed at length the pilot and helo crewman's difficulties in finding and releasing the koch fittings and considered the possibility that he might have had one arm out of his torso harness. (The crewman was found to have had very little training in the correct actuation of the koch fittings.) The pilot's standard torso harness had not been modified in accordance with Air Crew System Change 122 which provides for a panel to keep the parachute risers from being forced off the wearer's shoulders. He contacted the water leaning forward and had no time to get his hands up on the risers first. This, investigators speculated, could have been a factor in causing the risers to be pulled over the pilot's shoulders and, in trying to free himself, he could have pulled his arm completely free of the torso harness. Although it was a possibility, investigators did not feel this actually happened because the pilot vaguely remembers the torso harness was on correctly when he was in the helicopter.

Anti-Exposure Suits

Investigators also addressed the subject of anti-exposure suits in marginal water/air temperature conditions:

"NATOPS requirements or procedures were not a factor in the accident but could have been if the pilot had not been rescued when he was. NATOPS requires that anti-exposure coveralls are to be worn on all overwater flights when the water temperature is 59°F (15°C) or below; the outside air temperature is 32°F (0°C) or below or when the combined air/water temperature is 120°F or lower. The sea water temperature was 58° and the outside air temperature was 59.5° at the time of the accident. These requirements can be waived by Type Commanders . . . The waiver is made because of pilot comfort and marginal temperatures. The pilot was not wearing an anti-exposure suit although the aircrewman who went into the water was equipped with a wet suit worn under a summer flight suit."

Survival Recommendations

Recommendations in the area of survival training, procedures and equipment were:

- That, as was done in this rescue, aircrewmen aboard rescue helicopters always enter the water whenever a pilot is entangled in the shroud lines.
- That the rescue crewman be better equipped to cut entangled shroud lines.
- That Air Wing pilots and rescue detachments aboard the same ship work more closely together in order to clear up any differences in rescue procedures. Both should be more familiar with each other's survival training and efforts should be made to bring the two together. A lecture should be set up so that the rescue personnel could present Air Wing pilots with rescue information and problems; this should be followed by a question and answer period from the Air Wing. Both could gain from such a meeting.
- That a boat be used for rescue whenever the time element is not a factor and that the helicopter stay clear of the area until the helicopter crewman is sure that the parachute is completely free. The rotor wash will only impair the situation if the helo remains overhead.
- That more emphasis be placed on escape from entangled shroud lines while going through deep water environment survival training. It would be an aid to the pilots if the ComFAir would organize a survival program with permanent instructors at NAS "X" for water survival check out. A heated and enclosed swimming pool for water survival training is also recommended.
- That the squadron take immediate steps to procure new torso harnesses to be modified in accordance with Air Crew Systems Change 122.
- That Naval Air Systems Command take the appropriate steps to accelerate the manufacturing and procurement of a comfortable anti-exposure coverall to be used over water of marginal temperatures.

Endorsers to the final report concurred in these recommendations. Naval Air Systems Command stated in its endorsement that advanced development of an "intermediate" anti-exposure suit design is in progress with fleet evaluation quantities planned for distribution in late 1969.

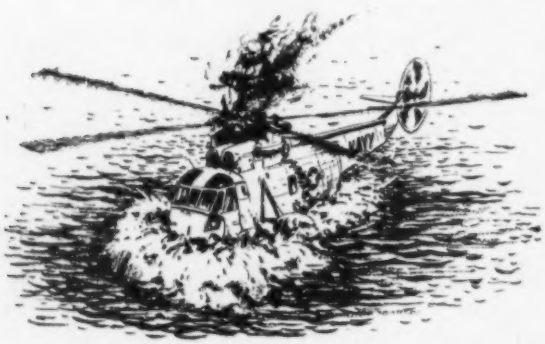
SLOP IT TO ME!

SWABBING the deck on most ships is done for cleanliness and looks, but these sailors aboard the USS RANGER (CVA-61), as aboard all attack carriers in the fleet, are scrubbing down the deck for safety's sake.

The RANGER is currently operating at high tempo in SEASIA. The pace of operations requires "de-greasing" the flight deck regularly to enhance the safety of personnel and aircraft. Flight deck scrubdowns like this one are held as often as necessary, usually several times each month, during breaks in flight operations schedules.

Ridding the non-skid surface of the flight deck of excess grease is a prime factor in carrier aviation safety.

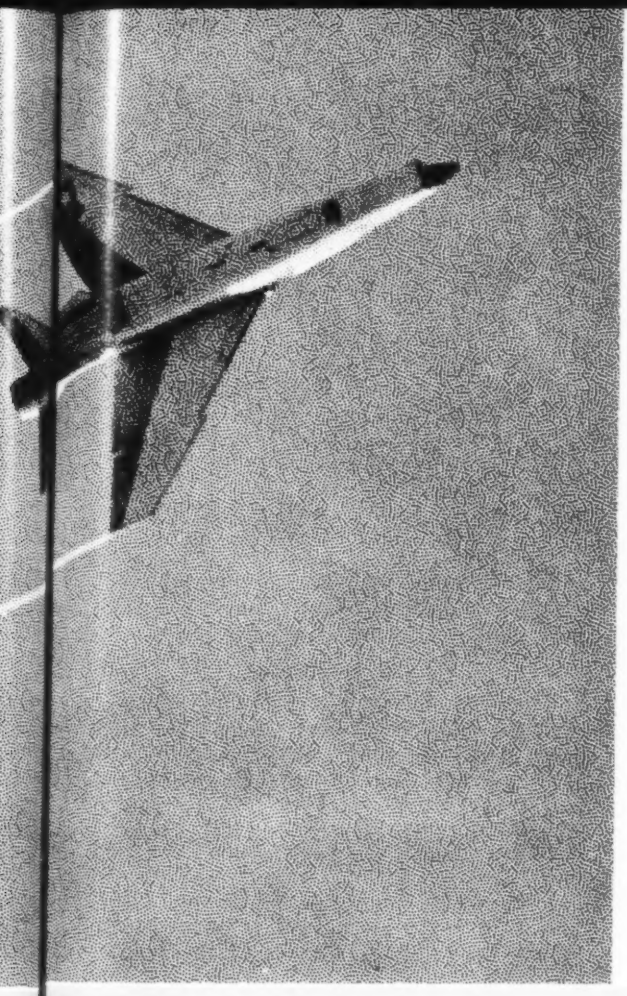
ADDED EMPHASIS



AN SH-3A aircraft was recently ditched at sea when a power loss and fire occurred in the No. 2 engine followed by a fire warning light in the No. 1 engine.

A safety engineering investigation report by a naval aircraft rework facility noted that the No. 2 engine, a T58-GE-8B, was found to have had a broken left hand fuel manifold, PN 37D400400P101, and a cracked right hand fuel manifold. The failure occurred at the junction of the secondary nozzle tube and the lower wear pad.

The naval aircraft rework facility also cited two possible causes of failure. One was a loose clamp, PN 37B200296P101, at the six o'clock location on the manifold, which allowed excessive manifold motion and pounding and the other was preloading of the fuel manifold during assembly.



Configuration Management and Control

By LCDR J. F. Hill
Power Plants Branch Officer
Naval Safety Center

WEBSTER'S dictionary defines configuration as an "arrangement of things." This is good enough for the average bear but the professional maintenance officer usually expresses the definition in more practical terms, i.e., "Are all my aircraft alike and if not, how do they differ?"

The management, control and documentation of aircraft configuration can be harrowing at times but it is very important. Generally speaking, there are three times when the configuration of an aircraft will become a subject of very close scrutiny:

(a) Right after one of the boys from the wardroom has taken one out and augered it in.

(b) During the time the AdMat inspector is standing

Further analysis of this mishap reveals that the engine had a combustion liner configuration installed which did not have *urgent action change,* GE T58 Engine Bulletin 114 and Amendment 1 incorporated; however, the log book showed that the change *was* incorporated. Whether or not the non-incorporation of this change contributed to the accident has not been determined at this time. The contractor had previously noted that assembly technique is suspect as a contributing factor in previous fuel manifold tube failures.

NavSafeCen has concluded that there could be a number of T58-GE-8B engines in operation with log book entries that erroneously indicate GE Engine Bulletin 114 and Amendment 1 have been incorporated. In addition, past assembly procedures for the fuel manifold may have preloaded the manifold and contributed to wear and premature failure. In the interest of precluding further failures of the fuel manifold, NavSafeCen has recommended to NavAirSysCom that:

- All maintenance levels review implementing procedures for incorporation of urgent action directives.

- The quantity of engines processed at CER/overhaul which do not have GE T58 Engine Bulletin 114 and Amendment 1 incorporated but which have log books which show incorporation, be ascertained.

- Appropriate instructions be promulgated to all T58-GE-8B operators to inspect for suspected discrepant fuel manifold assemblies.

in maintenance control asking questions that don't seem to have answers and

(c) When a forceful maintenance officer decides to positively practice configuration control of his aircraft with a view toward eliminating the occurrence of (a) or (b) above.

Before configuration control can be practiced, a fundamental base line must be established. To do this, two bits of information must be acquired. The first starts with the latest listing of all the technical directives which have been issued against the unit's aircraft. NavSup Publication 2002 is the place to start. This publication does not contain a listing of everything which may have been authorized to be done to modify your aircraft but it is as close as you can come.

The second bit of information needed is a listing of all those technical directives which have been incorporated in your aircraft. The good old aircraft/engine log book is not *necessarily* an honest source for this listing (though it should be) but again it is probably as close as you can get.

Now, by comparing what has been published against what has been incorporated, you can begin to form a picture. Displaying this information on a simple chart might prove helpful. List the technical directive numbers down one side of the chart and the aircraft side numbers across the top. Mark up the technical directives as they apply to side numbers and – either laugh or cry – as appropriate.

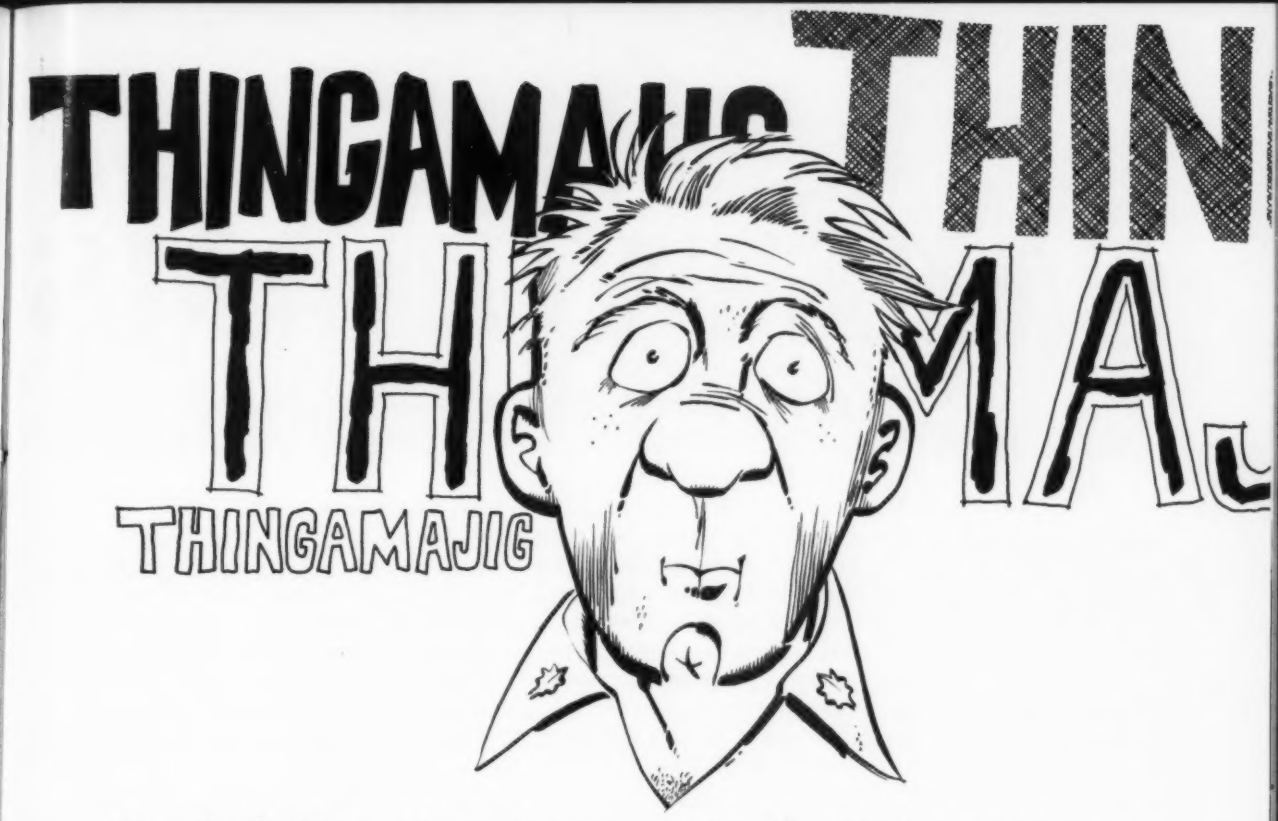
It might serve a good purpose to explain at this time why a verbal poke has been taken at NavSup Publication 2002 and the aircraft/engine logs. It was done because there are some very definite traps for the unwary buried in these two information sources. NavSup Publication 2002 contains a listing of those technical directives which are released through NavAirSysComHq; however, LESs (local engineering specifications) and LECs (local engineering changes) from naval air rework facilities along with contractors' ECPs (engineering change proposals) can find their way into your aircraft without knowing that NavSup Publication 2002 exists. As for the log books, unless you are fortunate enough to have been the sole owner of your aircraft since Navy acceptance and have kept impeccable records, you are faced with accepting the authenticity of someone else's log book keeping.

To press on – the quality assurance officer should be able to provide you with a copy of all applicable directives listed for your aircraft in NavSup Publication 2002. These directives must be carefully screened for their applicability to your specific aircraft by bureau number and/or type of installed equipment.

Assuming that you have uncovered some aircraft configuration surprises, we now come to the point where things could get a little mushy. If you choose to accept someone else's log book entries, then you are ready to start ordering kits and issuing TDC (technical directive compliance) forms for the unincorporated technical directives. If, however, an itching of the old scar tissue has made you skeptical of someone else's log book entries, then your only recourse is to perform a physical verification of the changes incorporated in each aircraft assigned to your squadron. The magnitude of this verification will depend upon the number of technical directive categories, the number of directives in each category, the age of the aircraft, the number of previous PARs and how seriously your predecessors treated configuration management.

Changes in the configuration of an aircraft are often directed because an existing installation is found to be unsatisfactory, inadequate or unsafe. A good example is the engine bulletin issued in 1963 which directed that a certain type of engine be reworked to accommodate 5/16 inch diameter bolts instead of the existing 1/4 inch bolts, thus eliminating a bolt failure problem which had plagued this engine. This change was never effected in the case of at least one engine. Subsequently, this same engine figured in an aircraft incident due to the failure of the existing 1/4 inch diameter bolt. Investigation disclosed that this engine had been in storage at the time the engine bulletin was issued but that the engine had been issued RFI in 1966 to an air station. After numerous transfers, it was accepted in 1967 by the squadron which owned it when the 1968 bolt failure occurred. Altogether, the engine was accepted by six different activities after the engine bulletin was issued.

The research effort necessary to insure accurate configuration control can be formidable but inadequate efforts can be even more costly. A sound program of configuration control will pay big dividends in increased safety and mission readiness.



NavSafeCen Maintenance Analyst's Lament

By LCDR J. F. Hill

THE way the goat-roping contest I am about to describe gets started goes something like this:

Item No. 11 or 17 in the message format of a *safety UR/aircraft incident report* will contain a statement to the effect that, "This is the seventh failure of the thingamajig in the past three months. Request NavSafeCen review failure trend."

At first glance a statement of this sort might appear to be proper and even harmless. Unfortunately, this is not true. In the majority of cases the reaction to this type of statement, from *up front,* is a violent explosion followed by various multi-colored, pencilled notes wanting to know:

- Why I have waited for seven of the thingamajigs to fail before initiating an analysis or
- Why I have to be asked by an operator to identify a trend and/or
- The details of my ancestry.

Now that I've been placed between a rock and a hard place, I have no alternative but to punch the code key on the computer and attempt to locate the reports of those first six failures. No one's perfect and every once in awhile, sure enough, previous failures *have* been reported, coded and stored *without any trend analysis having been performed* but this is the rare exception. More than likely the computer just sits there and laughs at me because there are no previously reported failures. When this situation prevails, I can (smugly) answer all the multi-colored, pencilled notes; however, the *real* purpose of our system has not been served, i.e., timely identification and analysis of undesirable trends.

The word "trend" as used in the term "trend analysis" becomes meaningless unless we adopt the philosophy that a trend has to *start* with the *first* failure. Don't wait until your third, fifth or seventh failure to submit that *first* report. The obvious danger in this practice is that if it is followed by all or even most of the aircraft operators, the first report may not be received by the Naval Safety Center until an impressive number of failures have occurred on a Navy-wide basis.

Storing the reports of failures within your squadron hurts you and your contemporaries who operate similar type aircraft and degrades NavSafeCen's ability to provide assistance. The ball's in your court – we're looking for a good return!

CNAVanTra
SAFETYGRAMS
Accentuate the Positive

A DESIRE to accentuate the positive approach to naval aviation safety has provided the impetus for a safety program initiated by the Chief of Naval Air Advanced Training – *Safetygrams.*

CNAVanTra Safetygrams are periodic messages addressed to all Advanced Training Command activities directing attention to safety in specific areas of operations or to specific safety considerations. The substance of the first four Safetygrams issued illustrates typical subjects covered:

Tires

Safetygram No. 1: To get our new *Safetygram* program rolling we will start off with safe tires.

CNATra msg 241926Z of Apr 69 (not to all) recommended many tire maintenance procedures to improve aircraft tire service life and enhance aviation safety. This message emphasized proper maintenance practices during preflight, daily and calendar inspections. An aggressive aircraft maintenance program must be followed and strict compliance with prescribed tire safety procedures is mandatory.

This week all squadrons will check for the correct inflation pressure of each tire installed on its aircraft. Ensure compliance with CNATraInst 4700.4 and BuWepsInst 5101.1B concerning proper inflation gages and gage calibration.

Line Operations

Safetygram No. 2: Let us look at our line operation and line personnel this week. The proper line servicing of aircraft is a key factor in aviation safety. Line petty officers, the line chief and the line officer must ensure that all line personnel, particularly plane captains, are adequately trained, properly supervised and throughly motivated. A sharp plane captain can make the difference between a safe, uneventful flight and a catastrophe.

An important but often neglected factor in a proper and complete preflight inspection of an aircraft is the use of a printed checklist instead of relying on the plane captain's memory. NavAirSysCom publishes a preflight checklist for every aircraft in the Navy inventory. Additional items can be added to the printed checklist at local levels to enhance the thoroughness of the inspection. These lists must be used religiously to ensure that no item is overlooked. The tempo of operations within the Naval Air Advanced Training Command sometimes dictates a rapid turnaround but a complete preflight inspection is mandatory.

Taxiing Aircraft

Safetygram No. 3: Do we have any contenders for the *Indianapolis 500* in the Naval Air Advanced Training Command? At times some of our pilots taxi as if they were in such a race – and some of the vehicle drivers in the area drive as if they were in the elimination heats at Indianapolis. These are *no–no's!*

Air station taxiways and parking aprons are not places for rapid movement either by airplanes or ground support vehicles. Each squadron and air station should emphasize the following points to pilots and necessary ground personnel:

- In congested areas taxi aircraft with extreme caution. If there is any doubt about clearance around an obstacle, stop and call or wait for a safety observer to check for clearance.
- Do not taxi close behind other aircraft. Jet engines do not digest foreign objects very well and props can also be damaged by flying missiles.
- Excess vehicular speed will not be tolerated in the vicinity of aircraft. Supervisory personnel should take prompt action against offenders.
- At night adequate lights shall be displayed in accordance with paragraph 549E of OpNavInst 3710.7D.

Let the professional racing drivers thrill the crowds on Memorial Day. There are enough normal thrills in aviation without creating our own on the flight line or taxiways.

Checkoff Lists

Safetygram No. 4: Checkoff lists, checkoff lists, checkoff lists! There are no substitutes for these unsophisticated but effective cockpit aids. They must be used to be effective. Inspect the checkoff list placards in each aircraft to ensure that they are there, are clearly legible and are properly lighted.

The next all officers' meeting will include a discussion of checkoff lists, emphasizing (but not limited to) the following:

- Checkoff lists must not be committed to memory. If the Navy makes the effort to print and install them in the cockpit they must be read and acted upon, item by item, by all pilots regardless of experience level.
- Distractions during the execution of a checkoff list are the primary reasons for omitting items. If a checkoff list is interrupted, the pilot must start over and complete the list from the beginning.
- When things do not appear normal during a landing, when airspeed, angle-of-attack or power settings are inconsistent with normal readings, it is much more professional to execute a waveoff and check everything again in accordance with the checkoff list than to make a gross error in the landing phase of operations.
- With two or more people in the cockpit, the checkoff list must be read on the intercom to ensure completion.

CHECKOFF LISTS, *Checkoff Lists,* checkoff lists!

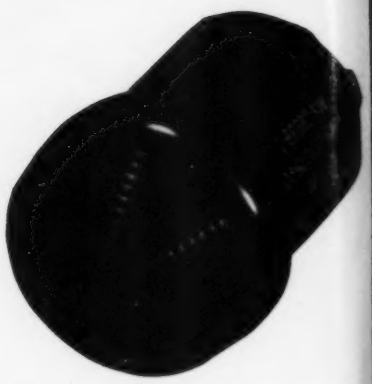
Program is Monitored

The CNAVanTra Aviation Safety Officer monitors compliance with the directives contained in the safetygrams by means of telephone or letter reports from Advanced Training Command Activities.

It is obviously difficult to assess the contributions of such a program in the overall safety effort but from where we sit, *Safetygrams* appear to be one more positive approach in the all hands effort to improve naval aviation safety. – *Ed.*

CURRENT EVENTS

E-2A Addendum



The complete trim button.

E-2A IAFB (Interim Airframe Bulletin) No. 41 provides instructions for the inspection and proper securing of the control column electrical trim switch actuation knob (see photos). The trim switch in question is the same type mentioned in the article entitled, "Current Events," in the March 1969 issue of APPROACH as being a potential shock hazard to the pilot.

The original article reported an incident where the pilot of an A-6A received severe electrical shocks (with near tragic results) when his hand came in contact with the exposed (hot) stud of a trim switch whose cover had come off. Since that report, a similar incident has been reported involving the pilot of an E-2A. In both these incidents the pilot was exposed to contact with 115 volts, 400 cycle a.c. power. This is dangerous under any circumstances but particularly so when an individual is controlling an aircraft. Under these conditions even a momentary (and non-lethal) shock can easily distract or incapacitate a pilot with the potential for subsequent tragedy.

E-2A IAFB No. 41 provides the following detailed instructions for inspection as soon as possible not to interfere with flight operations but not later than the next periodic inspection:

- *Inspection:* While sitting in the pilot's seat, apply counterclockwise torque with a strong finger grip to determine if the knob can be unscrewed by a force somewhat in excess of the pilot's thumb capability. Avoid excessive torque which may shear the chrome-copper alloy threaded shaft. If the cap is loose it should be repaired as indicated below. If it is secure no further action is required.

- *Repair:*

(1) Unscrew the knob completely. Retain No. 6 internal lockwasher.

(2) Examine the threaded parts for indication of adhesive (epoxy – clear; Loctite – red, green or orange; glyptal – rust).

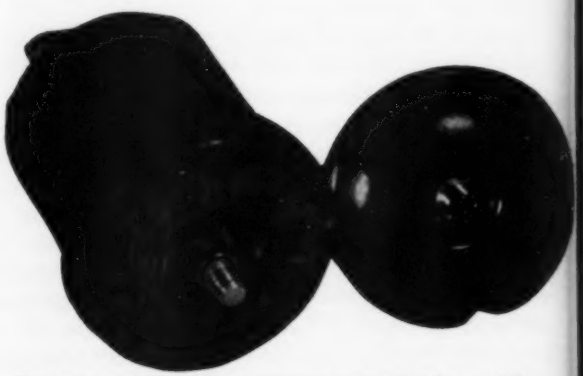
(3) Mask the open area around the switch centerpost to preclude entry of loose particles and clear by screwing the knob on and off, by brushing and by blowing away particles with low pressure air.

(4) Prepare epoxy adhesive (Mil-A-8623, Type I, FSN-8040-270-8137) in accordance with the instructions furnished. Properly prepared adhesive will be viscous and will not flow.

(5) Place one drop of adhesive on the switch center post and distribute evenly and thinly over the thread length. Remove any excess adhesive so that none will be forced into the switch when the knob is installed. Install lock washer and screw the knob fully into place.

(6) Allow 24 hours for the adhesive to cure at temperatures above 70 degrees F. At lower temperatures the cure will be retarded. To accelerate cure, use a heat lamp.

This trim switch is used in a wide variety of Navy aircraft in addition to the A-6 and E-2. Maintenance and operating personnel should insure that any aircraft having a cracked, broken or missing trim switch receives immediate attention. ◄



The trim button with cap removed exposing pilot to 115 volts, 400 cycle a.c. power.

MURPHY'S LAW *

ASQ-17 Cover Murphy

(on A-4C)

DID you ever hear a crunching sound as you closed the nose cone of an A-4C? Did you only then recheck the alignment stripes on the ASQ-17 cover? It is possible to install the cover using the F-8 alignment stripe. It is then *possible* to lower the nose (and damage the cabin pressure regulator, static lines and other safety of flight items) and still have everything look OK on the outside of the aircraft. It has been done . . . . *twice recently!*

Submitted by AT1 H. O. Northup
VA-36 Quality Assurance
NAS Cecil Field

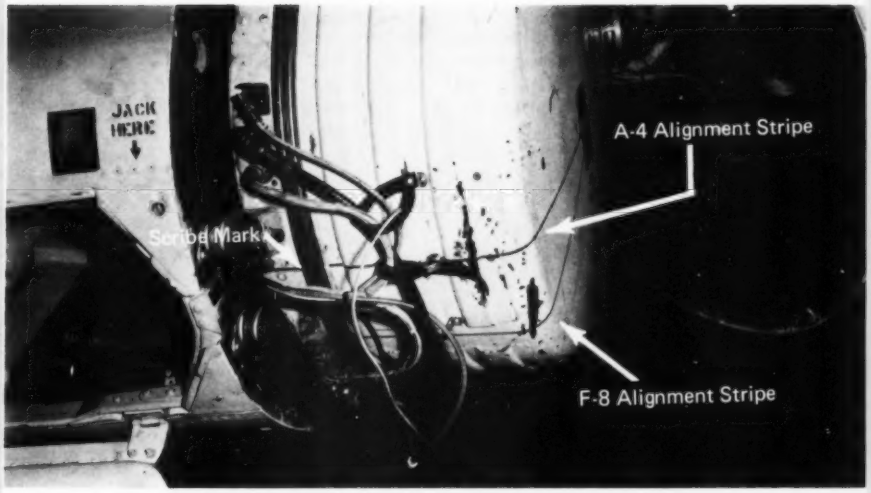
AT1 Northup also submitted a recommendation designed to make misinstallation of the ASQ-17 cover impossible. However, the suggested changes involve minor rework of components which are appropriate only upon the direction of NavAirSysCom. These recommendations have, therefore, been forwarded to NavAirSysCom for consideration. In the meantime it is suggested that A-4 and F-8 squadrons identify (with a stencil) the alignment stripes on the ASQ-17 cover and caution maintenance personnel to insure correct alignment.

* If an aircraft part

can be installed incorrectly,

someone

will install it that way!



Correct - Note that A-4 alignment stripe is aligned with scribe mark.

Incorrect - Note that F-8 alignment stripe is incorrectly aligned with scribe mark.

Letters

Get it right or let it alone. The conclusion you jump to may be your own.
James Thurber

Approach Minimums

Randolph AFB, Tex – In reference to the March 1969 article, "On the Glide Slope," I believe that the discussion of *HAA* and *HAT*, in reference to *MDA* and *DH*, is in error. According to my understanding of these terms, *HAA* is the height of the *MDA* above airport elevation (which is what your article states), while *HAT* is the height of the *DH only* above the highest runway elevation in the touchdown zone (first 3000 ft of runway). Your definition of *HAT* includes the *MDA* also, which is an altitude linked only with non-precision approaches (pg. 20). Further (pg. 21), your example in Figure 1 states that for the S-TAC-LOC-14 (non-precision) approach for a category C aircraft, the *MDA* is 400 ft MSL and that the *HAT* is 287 ft AGL. It seems to me that *HAT* should be *HAA* to make any sense as *DH* and *HAT* are concerned with precision approaches (azimuth or localizer information only, no glide-slope).

This is my understanding of these terms and I acknowledge the fact that I could be the one who is "all wet." In any case, I am interested in this matter and am anxious to hear your comments about it.

2nd Lt Carl H. Richardson, USAF

• You are not "all wet" but we suspect your source of information may be. If you have been using the information presented in the Special Notices of the FLIP Instrument Approach Procedures Books, you have been led astray!

Our "Glide Slope" article was based on FAA Advisory Circular No. 90-1A, which sets forth the following definitions:

• MDA – "Minimum descent altitude" means the lowest altitude, expressed in feet above mean sea level (MSL), to which descent is authorized on final approach, where no electronic glide slope is provided or during circle-to-land maneuvering in execution of a standard instrument approach procedure.

• DH – "Decision height," with respect to the operation of aircraft, means the height at which a decision must be made during an ILS or PAR instrument approach to either continue the approach or to execute a missed approach. This height is expressed in feet above mean sea level (MSL) and for Category II ILS operation the decision height is additionally expressed as a radio altimeter setting.

• HAA – "Height above airport" indicates the height of the MDA above the published airport elevation. HAA is published in conjunction with circling minimums for all types of approaches.

• HAT – "Height above touchdown" indicates the height of the DH or MDA above the highest runway elevation in the touchdown zone (first 3000 ft of runway). HAT is published in conjunction with straight-in minimums.

Recommendations to appropriate authorities have been initiated to have the FLIP documents changed to conform to the FAA definitions contained in the Advisory Circular.

You Can Tell a Fighter Pilot but . . . .

APO, San Francisco, Calif. – As one who has long admired APPROACH and the U. S. Navy's attitude toward flying safety in general, I ask a favor. Some years ago you employed a cartoonist without peer. I particularly enjoyed his illustrations of the song ending with, "You can tell a navigator by his sextants, maps and such. You can tell a fighter pilot but you can't tell him much." Another favorite was a two-page spread illustrating common aeronautical terms. One term, as I recall, was "traffic separation" defined as a situation in which two or more aircraft fail to collide.

I believe both of the above series of cartoons appeared in APPROACH during the summer of 1964 and I would be grateful if you could send copies of those issues.

CAPT Harold G. Hermes, USAF

• We're always glad to hear from our Air Force friends, especially in this manner. Individual copies of the issues of APPROACH containing the requested material are not available; however, reproductions of the cartoons have been forwarded. Incidentally, the cartoon containing the line, "You can tell a navigator . . . . " etc., was reprinted in APPROACH from the USAF magazine, *Airscoop.*

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request.

Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, Va. 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

Bouquet

Ft. Worth, Texas – Congratulations on the beautiful cover of the May issue. CDR Wilbur's painting of the NC-4 is excellent. It's very pleasant to see one of the many great feats of naval aviation so well depicted.

Your magazine is always of high quality – it accomplishes the difficult task of instructing and still being good reading.

R. E. Cunningham
General Dynamics, Ft. Worth Division

"Kiss My Foot"

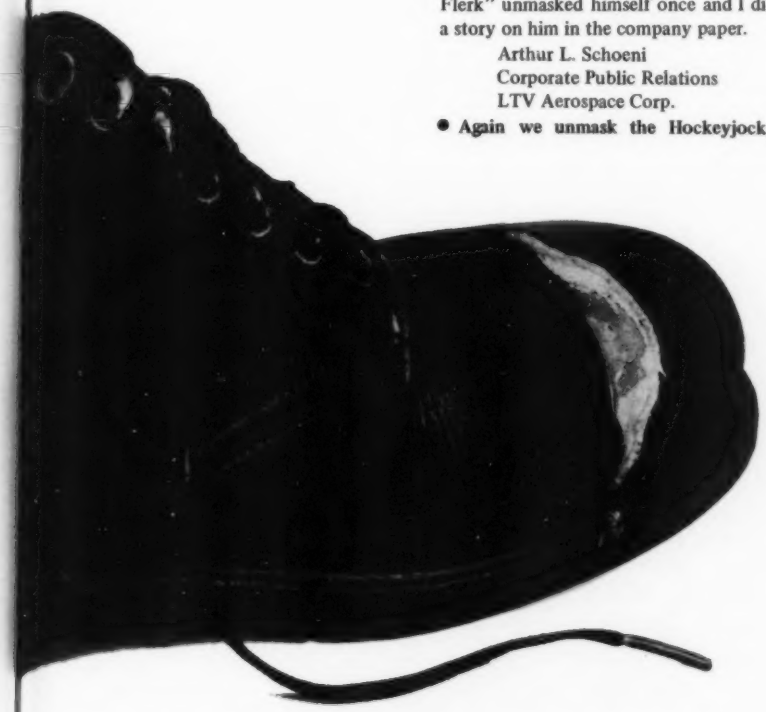
NAS Corpus Christi, Tex. – "I do, every morning when I get up. I'm that thankful that I still have it." These are the sentiments of the maintenance man (only slightly in jest) who was wearing the safety shoe shown in the accompanying photo.

During a propeller change on a TS-2A aircraft at a civilian airfield, the propeller slipped from the sling, fell about eighteen inches and one of the blades

struck the maintenance man's foot. The toe of the safety shoe absorbed the impact but the blade then slid back off the steel cap onto the man's foot and dislocated his big toe. This, although unfortunate, is a relatively small price to pay, for had he not been wearing the safety shoe, he most likely would have lost at least two toes – a staggering thought!

J. A. McElmurry
LT ASO

• **An excellent testimonial and needs no elaboration.**



Caleb Flerk

Dallas, Texas – I was interested in seeing your reprint of the famous old Corsair story "Some Troubles of a SErrious Nature" in a recent APPROACH. There is quite a story behind the little opus which you may not know about. We have had to reprint it 19 times over the years – don't know how many each time but we had about 2,000 made the last go-around. It was years after the original letter was received by the company before we found out who wrote it. The real "Caleb Flerk" unmasked himself once and I did a story on him in the company paper.

Arthur L. Schoeni
Corporate Public Relations
LTV Aerospace Corp.

• **Again we unmask the Hockeyjock, Arkansas hillbilly, Caleb Flerk. Our thanks to Richard W. DeMott, the real author of "Some Troubles of a SErrious Nature" and to LTV Aerospace Corporation for this aviation classic (repinted in the July 1969 issue).**

Information, Please

Royal Netherlands Naval Air Station "Valkenburg" – I request your assistance in finding the cause of a wing spread malfunction of one of our S-2A trackers (BuAir 148289).

I read a report in your October 1961 issue (page 41) describing exactly the same sequence of events which occurred in our incident last May. So far we only discovered some wear in the interior of the priority valve.

Can you please send me the DIR of your 1961 incident?

Jorgen N. Poortman
LT, Royal Netherlands Navy
Flying Safety Officer

• **Since we were unable to determine exactly which S-2 mishap was written about in the 1961 issue, we have forwarded a narrative computer listing of all S-2 and C-1 wingfold mishaps which occured from 1961 to 1969. We hope this will answer your questions.**

Thank you for your letter. It once again shows that aviation safety is international.

Ode

Fleet Post Office New York – Here is a poem that mysteriously appeared on our Bulletin Board. We feel it is worthy of publication.

BN's Lament

I'm not allowed to fly the plane,
The engines I can't turn,
I'm not allowed to say how much
My queasy stomach churns,
I'm not allowed to touch the stick
Cause I can't see too well,
But if the bombs stay on the rack
Then see who catches Hell!

R. D. Hulsing
LTJG PAO
VA-176

• **I think your thought**
Is simply great,
But I really feel
That I must state;
That if a checklist
All hands use,
The poor BN
Won't sing the blues.

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Vol. 15 **approach** No. 3

RADM Roger W. Mehle

Commander, Naval Safety Center

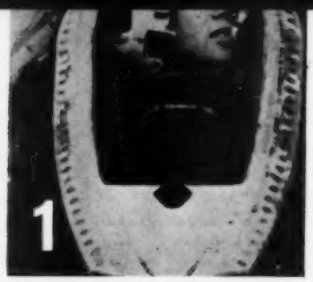
Our product is safety, our process is education and our profit is measured in the preservation of lives and equipment and increased mission readiness.

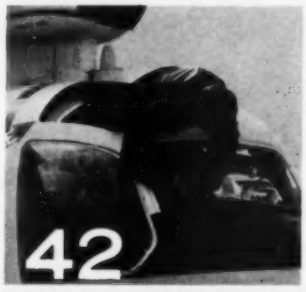
1 Distraction
5 A Case of Mistaken Identity
8 Conspiracy of the Birds
By LT Arnold J. Hupp
12 Propriety
14 Check Tires After FCLP
16 F-4 Sequential Ejections
By CDR W. V. Lassen
17 F-4 Canopy Jettison
18 Target of Opportunity
By LCDR C. Crutchfield
20 Simulated Emergencies
24 Safetyscope
26 Scenario for Survival
32 It Was Not An Ice Night
By LCDR R. G. Linsley
34 Room for Improvement
37 Slop It to Me!
38 Configuration Management and Control
By LCDR J. F. Hill
41 Maintenance Analyst's Lament
By LCDR J. F. Hill
42 Safetygrams
44 Current Events
IBC Oversight

DEPARTMENTS

6 Short Snorts
22 Anymouse
41 Flight Surgeon's Notes
45 Murphy's Law
46 Letters

48





NavWeps 00-75-510

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Next Month

Unauthorized Air Shows

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Credits This month's cover painting by CDR Ted Wilbur shows the SH-3 hovering in its ASW environment. Reproduction courtesy the artist. **IFC** Photo: Ed Holm, courtesy the Institute Proceedings. **Pg 8** Art by Leonardo Da Vinci. **Pg 9** Photo: Philip Morrison, courtesy the Norfolk Museum. **Pg 10** Photo: D. M. T. Ettlinger, Surrey, England. **Pg 11** (Right) Photo: Art Schoeni, courtesy LTV. **Pg 17** Photo: Norfolk Virginian Pilot. **Pg 20** Photo: Lockheed of California. **Pg 28** B.C. by Johnny Hart, courtesy Johnny Hart and Field Enterprises, Inc. **Pg 38-39** Photo: Art Schoeni, courtesy LTV.

Oversight

A PROCEDURE used by a patrol plane crew during WW II to record maintenance items or gripes occurring in flight was to notify the plane captain over the ICS. The plane captain wrote them down and the list was turned over to the pilot at the end of the flight to be entered on the yellow sheet *and* to be talked over with the maintenance officer or maintenance chief. Seldom was anything forgotten and consequently dangerous conditions – such as flares still in tubes, guns jammed or bombs/rockets hung up were never overlooked.

The crew of a P-3A left a marine marker in the retro launcher after leaving station on an ASWEX (AntiSubmarine Warfare Exercise) because they did not want to alert the sub they had been working and spoil things for their relief. After landing the retro launcher was not postflighted properly and the marker was left in the barrel. On the next preflight an ordnanceman inadvertently fired the retro launcher and the marker traveled through a window and came to rest against a metal locker in the hangar.

The comments of the C.O. follow:

"A mishap of this nature is one of the most serious that can happen. The retro is a powerful gun which, when inadvertently fired, can cause serious injury or death. Fortunately, no injury was inflicted in this case; however, this does not excuse the obvious negligence by several people in their landing with the unmentioned marker in the retro. Normal procedures were interrupted due to the tactical situation. Neither the plane commander, the tactical coordinator, the flight engineer nor the ordnanceman followed up on the postflight inspection to insure that the round was removed from the barrel. The flight engineer signed the postflight inspection as complete with the round still in the barrel. The aircraft was towed into the hangar by the line crew prior to the next flight, since there was no reason to suspect that the retro was loaded. Again, during the preflight inspection the checklist was not followed correctly. An additional problem area exists in that the aircraft is preflighted by the MRC (Maintenance Requirement Cards) and the ASW equipment is preflighted by the NATOPS manual. If the MRCs are completed prior to doing the NATOPS preflight of the retro, it is possible that search power could be applied and the compressor turned on prior to checking the retro for a round in the barrel. In the above incident the ordnanceman doing the preflight attempted to combine the MRC requirements and the ASW operational check; as a result he omitted the preliminary portion of the operational check of the retro.

"This mishap reemphasizes the necessity for constant supervision and attention to detail especially when the tempo of operations is stepped up during a large exercise. The Navy's demand for men in numbers reduces quality somewhat and frequently makes other compromises necessary. In the above situation, a PH3 had been trained to function as an ordnanceman until the squadron level of ordnanceman could be increased. These factors greatly increase the odds of having such mishaps but do not make them excusable. Safe and proper preflight and postflight inspections of the aircraft are constantly emphasized in this squadron and have been reemphasized as a result of this mishap. The men involved in the mishap had proven themselves to be reliable and trustworthy individuals over a period of time. A thorough look at all squadron procedures and safety precautions is being taken at this time in an effort to preclude any future mishaps of this or any nature. A 'get-tough' command policy, constant supervision and follow up on every job is the name of the game. Damage/accident prevention are key words in any hazardous operation. There can be no relaxation of safety procedures if safe flight operations are to exist."

His comments are timeless and are applicable to any squadron in the fleet. **Read and heed!** ◄

If you want
your plane to
takeoff,
climb,
bank,
glide,
turn,
soar,
maneuver,
dive,
land,
roll out,

then you must
preflight it
very carefully
for today is the first day of the rest of your life.